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PRURITIS ANI AND VULVAE*

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Pruritis ani or vulvae, or of both, is a common condition and a problem of general interest to physicians, since these patients consult not only their general practitioner, but the gynecologist, the proctologist, the urologist, the internist, the surgeon and the dermatologist.

The literature is somewhat confusing and one gets the impression that there is rather general disagreement as to etiology and treatment, with different authors championing different etiological factors as the most common cause.

SYMPTOMATOLOGY AND MORPHOLOGY

The itching occurs in an embarrassing location and because of this the patient often hesitates to seek the aid of his doctor and in the meantime applies local medication suggested by advertisements, friends, or the druggist. This, not uncommonly, finally results in such an intensification of the pruritis from primary irritation or dermatitis venenata, that he is forced at last into the doctor's office for an examination. In the chronic and intractable cases, the pruritis becomes so much of a problem that it dominates the patient's personality and affects the course of his life as well as the lives of those with whom he lives.

The itching is worse at night and keeps the patient awake, creating a state of nervous exhaustion approaching hysteria. We have even seen the development of true hysteria, with the patient lifting her pelvis high off the bed in the presence of family and friends, screaming out in uncontrolled anguish, and scratching the parts until they were almost completely denuded.

A factor that complicates some cases and makes them more difficult to handle is that sometimes an erotic pleasure is produced by scratching or rubbing the inflamed vulva or anus. On rare occasions a patient will confide that he or she gets a sensation similar to sexual intercourse from the experience, but more commonly, the idea will be suggested by the way in which the patient describes the paroxysms of itching.

Although patients with pruritis ani and vulvae may complain with equal eloquence, they do not always present the same morphologic picture in the involved areas. Some patients show little, if any, evidence of skin disturbance, while most show varying degrees of lichenification, thickening, maceration and excoriaton. On first examination the areas often show acute inflammation from the effects of irritating topical applications. The difference in the amount of lichenification and thickening that is found has been explained[1] by the fact that the constitutionally hypersensitive or atopic individual responds to repeated scratching or rubbing by the formation of edema, lichenification and thickening, while the person without this background does not respond to repeated trauma with the same pattern; instead the skin remains apparently normal.

The age incidence usually includes the

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group between 30 to 70 with the highest incidence between 45 and 65. The disease has usually been present for a year or more and sometimes it is of 15 to 20 years' duration.

CLASSIFICATION AND ETIOLOGY

According to textbooks and much of the current literature, pruritis ani and vulvae should be classified into two groups: first, primary or idiopathic cases for which no cause can be found; second, secondary pruritis ani and vulvae in which some etiologic factor can be found. The following list is included just to tabulate the various conditions which have been reported to be associated etiologically with pruritis ani and vulvae.

A. *Local rectal*
   1. Hemorrhoids
   2. Fissures
   3. Fistula
   4. Cryptitis and papillitis with streptococcic invasion and possible sensitization
   5. Rectal constipation
   6. Uncleanliness
   7. Proctitis

B. *Local vulvar*
   1. Leukorrhea from any cause (especially trichomonas)
   2. Vulvitis and vaginitis
   3. Uncleanliness

C. *Parasitic*
   1. Pin worms in children
   2. Trichomonas
   3. Monilia
   4. Epidermophyton
   5. Scabies
   6. Pediculi

D. *Chemical*
   1. Alkaline or acid urine
   2. Alkaline or acid feces
   3. Skatol in the feces
   4. Calcium or oxylate crystals in the urine.
   5. Self or prescribed medication

E. *Traumatic*
   1. Tight fitting girdles or underwear
   2. Rough toilet tissue
   3. Friction and moisture in obesity
   4. Strong soaps and hot water in bathing

F. *Pelvic conditions*
   1. Tumors producing congestion of the area, including pregnancy and malignancy
   2. Prostatitis

G. *General metabolic*
   1. Thyroid dysfunction
   2. Diabetes
   3. Kidney disease
   4. Anemia
   5. Liver disease particularly with jaundice
   6. Hodgkin's disease and leukemia
   7. Degenerative changes in skin and mucosa associated with the climacteric and later, senile changes incluiding leukoplakia and kraurosis.

H. *Allergic*
   1. Dermatitis venenata
      a. Local medication for pruritis, hemorrhoids, or leukorrhea.
      b. Nail polish and other substances accidentally carried by the hands
   2. Sensitivity to drugs as phenolphthalein, opium, oral ivy extract
   3. Sensitization to foods
   4. Sensitization to bacterial toxins

I. *Psychogenic*
   1. Psychoneurosis with substitution phenomenon
   2. Hysteria
   3. Masturbation

Most of the conditions in the above list can produce anal or vulvar itching but when the cause is usually obvious, as in the case of pediculosis or trichomonas, treatment of the cause brings prompt relief. In those persons with chronic intractable pruritis ani or vulvae, however, we seldom find a local or systemic disease that satisfactorily explains the condition.

The importance of rectal pathology is often stressed, but such eminent proctologists as L. A. Buie[2] and L. G. Bodkin[3] say that seldom, if ever, do they recognize local rectal pathology as being an actual causative factor. Bodkin states that in "95 per cent of cases seen by the proctologist, no observable lesion or disease can be demonstrated." Buie states that the "in-

stances in which an anal sinus, a hemorrhoid, an ulcer, a fissure, a stricture, or something of that kind, can be found are rare." Further evidence against these factors as being entirely responsible for intractable pruritis is the fact that when such local conditions are found and are removed surgically, the pruritis is either not benefited or at the best is only temporarily relieved.

Probably the next most frequently cited cause for pruritis ani and vulvae is the fungi, either a species of the epidermophyton or *Monilia albacans*. If the fungi are so frequently the cause, and we believe the mycologists who tell us that no disease should be classified as being caused by a fungus without at least demonstrating the fungus, either by scrapings or by culture, then we wonder why some scientifically minded individual has not settled the matter by publishing a sizable series of cases with cultural proof. The answer to this is the fact that the demonstration of a pathogenic fungus is very difficult in these cases. Although most of the patients we see have been treated for a mycotic infection with various fungicidal preparations, including gentian violet, Whitfield ointment and carbolfuchsin paint, the evidence for fungus infection is rather flimsy. The diagnosis is apparently made because the area involved is usually circular, superficial mycotic infection of the inguinal region and buttocks is rather common, and the most prominent symptom of dermatomycosis is itching. Furthermore, everyone expects fungi to grow in a moist intertrigenous area. Intractable pruritis ani or vulvae is rarely seen in association with typical tinae of the inguinal region or buttocks and the cases we see have not been helped by fungicides.

While it is perfectly true that pruritis is a symptom and not a disease in itself, a thorough physical examination is frequently completed without a satisfactory explanation for the intense itching that occurs in these cases.

There are certain factors, however, that characterize the patients we see. In the first place, these individuals possess the same type of personality. They are hard-working, overactive and restless, with more plans than they can accomplish. They do their own and other people's work and drive themselves mercilessly. At the same time they worry over trifles and have a tendency to be emotionally unstable. They all have symptoms of nervous exhaustion. These patients do not know how to relax. They do well while occupied with their tasks during the day but at night they are restless and mentally active. After a short period of physical inactivity, the edema that has been maintained during the day begins to subside and it is then that the pruritis becomes their major problem. After a night spent with only snatches of sleep they are tired and exhausted, but feel better later in the day when they again become active. These people live on nervous energy and the vicious cycle is perpetuated. It is like a squirrel in a cage trying to catch his tail: exhaustion is the result.

In the second place there is usually some precipitating problem which the individual cannot satisfactorily solve or adjust, such as financial worries or family troubles. The joke about the cause of a man's pruritis ani being traced to the stack of unpaid bills hidden under the seat of his easy chair, and cured by a legacy from his rich old uncle, might not be so far wrong in some cases.

When this precipitating factor or seemingly insurmountable problem occurs in an individual with the previously mentioned constitutional background, there is usually the development of a substitutive mechanism. Some organ or system of the body is selected and it acts as the shock organ for the personality as a whole. Such individuals may develop any one of a long list of functional diseases, including conditions of the cardiovascular system, gastrointestinal system, and so on.

The third factor of importance is the selection of the anus or the vulva as the shock area. This is accomplished most probably by some irritation in the area which focuses the attention of the personality there. This localizing irritation that makes

the individual conscious of the anus or vulva may be due to any of the factors previously tabulated. We would like to emphasize several conditions which seem to act as the trigger mechanism in some cases. During the climacteric, in women particularly but also in men, the skin and mucous membranes not only begin the degenerative changes seen to culminate in senility but the skin is more sensitive to mechanical irritation.[5] Most patients would fall into this age group. Hemorrhoids and fissures are common ailments and frequently associated with a mild pruritis. A purulent discharge from trichomonas or any other cause is usually associated with some pruritis. Emphasis should be laid upon the drugs used in the treatment of leukorrhea with caution against strong irritating chemicals and drugs with a high index of sensitivity. We have also known cases of intractable pruritis ani that began with the surgical removal of hemorrhoids, probably due to sensitivity of the patient to the accompanying antiseptic applications. We believe that not infrequently the primary irritation is due to tight fitting girdles or underclothes. Patients are sometimes seen with pruritis ani or vulvae who also have itching of the ear canals and eyelids. Some of these cases have proved to be due to sensitivity to nail polish.

Kraurosis and leukoplakia are conditions which must be recognized and distinguished from the lichenification and maceration of pruritis ani and vulvae. Leukoplakia does not differ in its appearance on the mucous membrane of the vulva or anus from that occurring in the mouth. Kraurosis is associated with marked atrophy and atresia of the orifice. These conditions are malignant or develop malignancy in approximately 20 per cent of cases.

TREATMENT

It is often a very difficult problem to gain the confidence of a patient with pruritis ani and vulvae and to insure cooperation in carrying out a schedule of treatment. They greet you with the statement that they have a drug store on their cabinet shelves and that they have tried every known ingredient suggested by friends, druggists, and doctors, without success. They want and demand radical measures, which probably accounts for the extensive surgery of nerve cutting, sloughing alcohol injections and tattooing procedures that are all too frequently performed. Suffice it to say, that a high percentage of recurrences occur after these procedures and we do not recommend their use.

One of the most important things to remember is that the itch cannot be controlled by counterirritants or strong medication. One cannot burn the itch out because the medication acts in the same way that scratching does and the vicious cycle is simply perpetuated.

The procedure we use in the treatment of these cases is simple. We try to give the patient some insight into the cause for his or her itching. Any of the factors that might have acted as the trigger mechanism are dealt with accordingly. We recommend the use of loose-fitting underwear. For men the loose-fitting one-piece garment is excellent, whereas tight shorts and jockey strap shorts are particularly bad. The most satisfactory way to relieve a paroxysm of itching and at the same time soothe the inflamed skin is by means of wet compresses. We use a solution of boric acid and corn starch at room temperature, and advise the maintenance of the pack in position much in the same way that a sanitary napkin is worn. These packs should be worn even during sleep while the condition is severe. Compresses are essential when the area shows evidence of acute irritation by local medication as often the tissues will not even tolerate plain petrolatum. The parts are kept clean by applying a zinc oxide ointment containing benzocaine directly before bowel movements and gently sponging the area afterward with moistened soft toilet tissue or absorbent cotton. A suppository containing benzocaine is inserted twice a day and if there is an area of maceration and dermatitis around the anus or there is involvement of the vulva, then the zinc oxide ointment is applied more often. The benzocaine acts effectively only on the

mucous membrane and the muco-cutaneous junction. The hands should be restrained during sleep. The patient is instructed to get up early and not to take naps during the day, to avoid "turning the clock."

Small doses of phenobarbital taken during the day and one hour before bedtime usually do a great deal to help this type of person relax. We find that many women, even though they have ceased menstruating several years previously, still have symptoms of the menopausal syndrome and estrogenic substances are indispensable in the treatment of their condition. The estrogens not only serve to modify the nervous tension, but also have a physiological effect upon the skin and mucosa of the area involved.

X-rays have come in for some unjust criticism in the treatment of pruritis ani and vulvae because their use has been abused. When used intelligently, however, they can be of unquestionable aid. It must be remembered that x-rays will not cure the patient. The beneficial effect is attained by anesthetizing the nerve endings in the area, which relieves the pruritis long enough to interrupt the vicious cycle of itch, scratch, dermatitis, itch, and so on, and allow the skin to regain its normal state. Large doses are unnecessary and 75 to 100 r should be sufficient. Usually four or five weekly treatments give the necessary time interval and no more radiation is given. If the pruritis is not relieved, then there is failure in one of the other aspects of treatment and further radiation would not be of any benefit.

CONCLUSION

In conclusion, we want to emphasize that in spite of the fact that in the majority of cases no organic lesion is found either locally or systemically that entirely explains the pruritis ani and vulvae, none the less a careful examination should be made.

Most cases seem to present this combination of circumstances: some irriation to the area focuses the attention of the personality on the vulva or anus; this occurs in an individual who has a constitutional background of nervous instability and who at this particular time has some serious worry or problem. The anus or vulva thus becomes the outlet or shock organ and a vicious cycle is set up. It must be borne in mind that there are two cycles instead of one as commonly recognized. First, the local skin cycle of itch, scratch, dermatitis, itch, and secondly, the vicious cycle of overactivity, worry, nervous exhaustion, or emotional instability. Both of these cycles must be understood and dealt with in obtaining results in the treatment of pruritis ani and vulvae.

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THE PRESENT STATUS OF OUR KNOWLEDGE CONCERNING THE SPREAD OF POLIOMYELITIS*

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INTRODUCTION

Besides having a personal interest in poliomyelitis, I selected this topic in order to try to bring together and evaluate much experimental data that have been performed in somewhat of a haphazard fashion. One must admit at the beginning that there is still little or no direct data upon which to build a picture of how the virus enters the human body, from what sites it invades the central nervous system, and in what peripheral site

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it multiplies or is liberated. I used the word "virus" in the above statement, yet we cannot be certain that poliomyelitis actually is a viral disease; it may be proved later to be a deficiency disease or a disease that belongs in a category hitherto undescribed. Furthermore, at present, the human being is the only known reservoir of the virus, and the monkey, the only known experimental animal. Finally, it is necessary to theorize from a few facts, to correlate these theories with clinical experience and then to draw conclusions which are at best only shrewd guesses.

In this paper I shall present experimental data which deals with the transmission of poliomyelitis and attempt to correlate these experiments with what has been observed clinically. Conclusions will be drawn and finally, postulations will be presented which I believe deserve serious thought and experimentation in the near future.

PROPERTIES OF THE VIRUS

That the etiology of poliomyelitis is viral in nature must be accepted as a working hypothesis at present. While not definitely proved that the agent is a virus, it behaves in a manner similar to members of the virus group, in that it cannot be seen with the microscope; that it lives intracellularly and depends on living cells for growth and that it is highly specific, being a strictly neurotropic agent. With the aid of the newly developed electron microscope, it is estimated that its size is approximately 10 mu to 12 mu, one of the smallest viruses known.

That the poliomyelitis virus is an especially hardy one, is shown by its remarkable resistance to physical and chemical agents. It withstands drying *in vacuo* for at least a month and exposure to 50 per cent glycerine for several years. Phenol, ether, acetate, gastric and intestinal juices, bile and icebox temperatures do not destroy the virus, while copper sulfate, mercurochrome, mercury bichloride, potassium hydroxide, potassium permanganate in concentrations of 0.1 per cent and 50 degrees C. (30 minute) heat do inactivate the agent.[1] Filtration and chlorination, in a concentration usually employed in water purification, are ineffective in removing the virus.[2]

Of all the viruses known to attack the human nervous system, the virus of poliomyelitis has the most limited of host range. The virus isolated from human tissue has been found to be pathogenic only for certain monkeys and chimpanzees and not for mice, guinea pigs or rabbits. Many investigators have attempted to adapt strains of the virus to the rat or guinea pig, but for the most part these experiments have not been successful, and the conclusions drawn from such experiments are of doubtful value when applied to the human form of the disease. The poliomyelitis virus exhibits strict neuronotropism and will not multiply in the undifferentiated embryonic chick or mouse tissues.

There are many immunologically distinct types of the poliomyelitis virus and the antibodies developed against one type will not protect against another, so that secondary attacks due to a heterogenous strain are possible. Finally, the virus seems to consist entirely of protein, or of protein in combination with nucleic acid.[3]

PORTALS OF ENTRY

Most of the conclusions concerning the method by which the virus gains access to the human body have been drawn from experimental work done on the rhesus monkey, animals which actually are not susceptible to the disease. Many times these conclusions have not been correlated with clinical experience and simple logic; therefore, much chaos has arisen concerning the evaluation of these data. However, these animals are the only ones available in numbers to perform the experiments upon and we must make the most of an obviously handicapping factor in the experimentation of poliomyelitis.

The human portal of entry concerns us for many reasons, but particularly if it gives a clue as to what carries the virus. Is the virus associated in nature with a droplet of nose spray; with contaminated food or other objects; or with a contaminated biting insect? In order to view the experiments concerning each of these possibilities with a critical eye, we may begin with what

is known concerning the sites of predilection and the selective sites of location of the virus in the human body. The most extensive work on this has been done by Sabin and Ward.[4] Their work is most illuminating on this subject because it deals with human tissues affected with poliomyelitis and not that of monkeys. They set out to determine: (a) whether or not a certain system was affected; (b) what might be the centrifugal or centripetal pathways pursued by the virus outside the central nervous system, and (c) whether or not at the time of death the virus is distributed indiscriminately throughout the central nervous system. Their material was derived from necropsies of six or more human cases of poliomyelitis, under aseptic conditions and an individual handling of each tissue or group of tissues to be tested. The tissues were ground up, centrifuged and extracted with ether and were then inoculated intracerebrally into rhesus monkeys. If the monkey developed flaccid paralysis, experimental poliomyelitis was diagnosed. The monkeys either died or were killed and the detection of typical lesions by pathologic means was determined; finally, passage of the virus from these monkeys to a second series of monkeys was performed. Their results on the distribution of the virus in the tissues of fatal cases of poliomyelitis are as follows:

(a). The absence of demonstrable virus in the olfactory bulbs and anterior perforated substance indicates that the olfactory pathway need not be affected in human beings.

(b). The absence of virus in the nasal mucosa suggests that it is not the site of virus multiplication and dissemination.

(c). The absence of virus in the salivary glands indicates that the saliva is not a likely means for its elimination.

(d). The positive results with the tonsils and pharyngeal mucosa, are probably due to the pharyngeal tissue rather than the tonsils.

(e). Next to the central nervous system the virus is distributed predominantly in the alimentary tract and is present not only in the contents but also in the washed walls of the various parts of the tract including the pharynx, ileum, and occasionally the colon.

(f). Infection of the walls of the alimentary tract appears to be the result neither of the generalized dissemination of the virus nor of secondary centrifugal spread, but rather that of primary localization or *portal of entry.*

(g). The distribution of virus in the central nervous system is limited to certain areas and is not as indiscriminately disseminated as viruses which can invade through the blood vessels (equine encephalomyelitis), or those which having entered by a specific nervous pathway, are capable of extensive centrifugal spread (rabies).

(h). In the absence of evidence of any appreciable centrifugal spread to peripheral collections of nerve cells, the demonstration of virus in the abdominal sympathetic ganglia of one case is significant in suggesting one of the possible routes of virus progression in certain instances.

Thus it can be concluded that the virus is distributed predominantly in two systems: (1) certain regions of the nervous system and (2) the alimentary tract.

With the sites of location of the poliomyelitis virus in the human body in mind, we may now proceed to consideration of the vast amount of data concerned with the experimental portals of entry of the agent. Most of this work has centered around infecting rhesus monkeys by three routes: (1) the olfactory portion of the nasal mucosa; (2) the mucosa of the digestive tract, (3) subcutaneous and intracutaneous inoculation.

To begin with it might be well to state the conception of Toomey[5] concerning the obligate affinity of the poliomyelitis virus for grey fibers of the nervous system. He postulates that the only way the virus can be absorbed in the human being is by grey end fibers of somatic or autonomic nerves, and once absorbed from these sites it spreads along the axis cylinders toward the central nervous system and causes damage only when it reaches the nerve cell. In

other words, it is only when the virus comes into contact with these fibers it can be absorbed and thus spread to the vital nerve cell. That this is true is well demonstrated in experiments and in nature. The poliomyelitis virus must be widely disseminated in nature, yet everyone does not contract the disease, due possibly to many factors, but one in particular, that is, that the virus does not come into contact with grey fibers of those who remain well. In the laboratory, monkeys have been exposed to the virus under similar conditions, yet not in any report have all the animals displayed the clinical and pathologic picture of poliomyelitis, thus in some the grey fibers must not have been exposed to the agent. That the grey fibers are the ones affected is shown by the fact that they are the only ones usually affected in the disease. From this conclusion, one can see that the portal of entry may be any of the three mentioned above, provided that the grey fibers of that tissue come into contact with and absorb the virus.

THE OLFACTORY PORTION OF THE NASAL MUCOSA

The observations of earlier workers seemed to point to the fact that the poliomyelitis virus spreads in nature by means of contact of a susceptible person with an infected one. It was surmised that this was accomplished by means of infected droplets of nose spray. This led to much experimental work with monkeys, which were inoculated with the washings of the nasopharynx of known cases of poliomyelitis. Usually these reports showed that from one-half to three-quarters of the animals developed poliomyelitis; this was considered proof that the virus was present in the nasopharynx and lent support that the virus of poliomyelitis was spread by human contact.[6] Other experiments were performed in which the virus was instilled intranasally in monkeys. The animals were found to be easily infected by this method and necropsy studies on them showed inflammatory infiltration along the olfactory pathway. If, however, this pathway were surgically interrupted or the nasal mucosa were treated with certain chemicals, infection could not be produced. These data presented a strong argument that the virus was spread from one person to another by the nasopharynx of one becoming infected with droplets of nose spray from the other. Lending support to this argument was the anatomically known fact that the olfactory mucosa is the region where the nerve endings are nakedly exposed to the exterior, and the region where the virus could realize immediate contact with nerve cells,[7] so that until the past few years it was widely held that the common natural portal of entry of the virus was the olfactory portion of the nasal mucosa. It was said to spread from this area in the nose along the olfactory nerve to the olfactory bulbs and from there along the olfactory tracts to the central nervous system.

THE MUCOSA OF THE DIGESTIVE TRACT

In 1934, experimenters began to question the olfactory route as the most natural portal of entry, because only rarely could it be demonstrated that the olfactory bulbs of human cases showed a trail of inflammation. This adds weight to the previous statement that what has been proved experimentally cannot always be correlated with clinical and pathologic evidence in human cases of poliomyelitis.

Since 1934 investigators have become cognizant of the fact that poliomyelitis is essentially a disease of the temperate zone, occurring during the summer months and that its epidemiology closely resembles that of diseases whose known portal of entry is the alimentary tract. This stimulated workers to investigate the digestive route as a more likely portal of entry of the virus of poliomyelitis. In earlier experiments monkeys were fed the virus by stomach tube and no attempt was made to absolutely rule out the virus contaminating the olfactory mucosa by vomiting, so that only the recent experiments will be considered in which this route is definitely known not to have been contaminated.

Faber and Silverberg[8] reported infecting a monkey by applying the virus covered with digestible fat capsules in the esophagus. The olfactory route was blocked by applying zinc sulfate to the nasal mucosa,

and was not contaminated as shown later by no inflammatory lesions demonstrable in the olfactory mucosa.

Howe, Bodian et al.[9] have shown that active virus is present in the human oropharynx by using nasal swabs rubbed against the posterior wall of the oropharynx of humans with poliomyelitis as their means of obtaining the agent instead of nasal or pharyngeal washings. This material was inoculated intracerebrally into monkeys, 50 per cent of which developed poliomyelitis.

Many investigators, including Sabin[14] and Ward,[15] Paul and Trask,[16] Flexner, have all produced poliomyelitis in cynomolgus monkeys by simple feeding, as placing the virus in bananas, dropping suspension of the virus in the mouth, and so on. These experiments were non-traumatic, involving no injury to the mucous membranes and are thus comparable with natural infection. Faber, in an attempt to determine whether the upper or lower portion of the alimentary tract was the portal of entry, came to the conclusion that the upper portion (mouth, pharynx, esophagus) was more vulnerable for poliomyelitis.[10]

In reviewing these experiments, Toomey[11] states that we should not be too astonished at those cases of poliomyelitis which develop following tonsillectomy or tooth extraction, because under these circumstances the virus and frayed edges of peripheral nerves can meet, as a result of which disease follows. He points out that the gastrointestinal tract, actually an external organ yet contained within the body, is not as protected as the skin, for example, in not having any external layer or "epimucosa" to prevent absorption. In fact, absorption should occur any place along the intestinal tract, and the poliomyelitis virus is no exception. He indicates that in the more naturally occurring disease, perhaps there is a small denuded area with exposed nerves at some point in the alimentary tract, which acts as the portal of entry of the virus. The agent is thought to travel via the abdominal sympathetic nerves and ganglia from the gastrointestinal tract to the central nervous system.

SUBCUTANEOUS AND INTRACUTANEOUS INOCULATION

That poliomyelitis can occur after inoculation of the virus into the skin has been shown on several occasions, the most striking of which occurred in a laboratory worker. The virus was accidentally inoculated subcutaneously in this worker, following which she developed the disease. Strimpert and Kessel[12] injected intradermally several monkeys with the virus and obtained "takes" in some. They concluded that this was an inconsistent way of producing poliomyelitis. While definitely shown that the disease can be produced in this manner, it is obviously a very unnatural portal of entry in the usual case of poliomyelitis.

In summing up, it appears that the alimentary tract is the primary site of attack by the virus in most naturally occurring cases. While not denying that other routes are possible, it seems more logical to conclude that the digestive tract is the system usually implicated in the portal of entry of poliomyelitis, as sustained by the facts presented above: that it is a site of predilection of the virus in the human body, that experimental disease can be produced by simple feeding of the infectious agent to monkeys, that the virus can usually be isolated from stools of clinical cases of poliomyelitis, and that the epidemiologic statistics of poliomyelitis tie it in with the diseases whose known portal of entry is the gastrointestinal tract. It might be mentioned that some workers have postulated that infection may occur by the respiratory tract.[13] However, when one considers the clinical picture and what is known concerning the sites of location of the virus in the human, there is very little or no support of this concept.[14]

PORTALS OF ELIMINATION

From what has been said concerning the portal of entry, the portals of elimination become obvious. The virus has been demonstrated by inoculation of nasopharyngeal washings, tonsillar washings and stools into monkeys. These inoculums were usually obtained from other monkeys that

showed clinincal signs of the disease, with the exception of the stool inoculum. In practically every case of poliomyelitis, human or experimental, the virus can be easily demonstrated in the stools, while it is very difficult to detect in nasopharyngeal washings. This lends support to the argument that the nose and mouth are not common portals of elimination of virus and that virus in the stool does not represent secretion from the nose and mouth that have been swallowed and concentrated in the intestinal tract.[15, 16, 17]

The virus may be found not only in the stools of paralytic patients, but also in those of patients with non-paralytic and abortive types of poliomyelitis, and even in apparently healthy individuals. Thus the question arises, do chronic carriers of poliomyelitis exist? Horstmann and Ward[18] have shown that there is a progressive decline during the first eight weeks of the disease, in the number of convalescent patients excreting virus. After the twelfth week the virus could not be found in the stools of the patients. Thus it seems that chronic carriers do not exist.

The virus has never been demonstrated in the urine from the bladders of poliomyelitis patients.[19]

Incidentally, it may be mentioned here that the virus is not absorbed by the blood stream from the nasal or alimentary mucosa; also transfusion from a paralyzed monkey to a well animal does not result in disease of the recipient monkey.[20]

SOURCES OF INFECTION AND POSSIBLE VECTORS

As to the reservoirs of the poliomyelitis virus in nature, only speculations can be presented which are based on a few known facts. The known facts can be stated rather briefly. Paul and Trask,[21] have demonstrated the presence of virus in sewage from several large cities. The virus, however, has never been demonstrated in "running tap water." As to vectors, the non-biting filth flies have been found to harbor the virus. It is interesting to note, however, that they harbor the agent within their bodies, and not so much on the exterior. To demonstrate this, flies were trapped in: (1) areas where there was a potential source of the virus in the form of exposed excreted human feces; (2) in areas where no such source was apparent, that is, in some of our cleanest and most sanitary urban areas. Part of the flies caught were ground up, extracted with ether and then inoculated into monkeys, others were only washed and that material inoculated into monkeys. For the most part positive "takes" came from the ground up suspension. It is known that flies produce a "vomit spot" before feeding and it may be surmised that they can serve as carriers of the virus by their contamination of food with these vomit spots.

In reviewing the literature, poliomyelitis virus has never been demonstrated in the mosquito, stools of sick dogs, well water, paralyzed chicken or in the tomato plant.[22]

SEASONAL INCIDENCE

Poliomyelitis is a year round disease. Epidemics continue into the cold weather and cases are reported even in the severest winters. It is true, however, that epidemics usually occur in the late summer and it has been shown how the disease progresses through the country as warm weather occurs in various sections. From these observations, we can draw only limited conclusions; they are that the winter cases may be due to contact spread, whereas the sharp seasonal peak in summer and fall may be due to insects disseminating the virus (the insects contaminating themselves from infected human feces).

SUMMARY

In this paper I have tried to bring together much experimental data concerning the spread of poliomyelitis. Properties of the virus, portals of entry and exit, sources of infection, possible vectors and seasonal incidence were considered. To sum up, it appears that the virus of poliomyelitis is a strictly neurotropic agent, and that it is an especially hardy one. It has been detected in urban sewage, filth flies, nasopharyngeal washings and stools of patients with the disease. The virus of poliomyeli-

tis has been found to be pathogenic only for humans, monkeys and chimpanzees, thus it has a limited host range. Experiments on the portal of entry of the agent were presented and it seems that the most likely natural site is the alimentary tract, the virus being absorbed and traveling along the grey fibers of the sympathetic nervous system to the central nervous system, where it attacks the nerve cells. That other routes are possible, for example, olfactory tract, respiratory tract, and subcutaneous inoculation, is not denied, but considered unlikely when correlated with clinical and pathological evidence. At present the only known reservoirs of the poliomyelitis virus in nature are stools from paralytic and abortive cases and urban sewage. That flies may carry the virus and disseminate it during epidemics is presented as a possible explanation of the sharp seasonal peak of poliomyelities (actually a year round disease) in the summer and early fall.

CONCLUSIONS

Conclusions drawn from this study concerning the spread of poliomyelitis are as follows:

1. That poliomyelitis is spread in many ways, the most common one being the ingestion of the virus on food, fingers, and so on, which were previously contaminated by flies or by coming in contact with a known case of the disease. Other means of spread are: (a) susceptible persons coming into contact with infected persons, who contaminate the susceptibles with infected droplets of nose spray; (b) the subcutaneous inoculation of the virus.

2. Some epidemics of poliomyelitis may be due to infected milk or water but these outbreaks would fall into the previously mentioned category of ingestion of the virus.

3. Much more work will have to be done before any conclusions concerning the spread of poliomyelitis can be drawn. The above conclusions are for the most part speculations and are not based on concrete experimental data, but on circumstantial evidence only.

4. It is my belief that poliomyelitis is possibly spread by the mosquito. Work on this possible vector has for the most part been avoided due to the fact that the virus has only rarely been demonstrated in the blood stream of patients with poliomyelitis, thus the conclusion that the mosquito has no way of becoming infected. Despite this fact, I believe that after more experimentation has been done, the mosquito will be incriminated as the vector of poliomyelitis.

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UROLOGICAL COMPLICATION FOLLOWING OPERATION FOR IMPERFORATE ANUS

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Recently a case of recto-urethal fistula in a male infant who had had surgical correction of an imperforate anus, came to our attention. The problems arising in the management of this unusual complication prompted us to make this report.

In the available literature, very little warning is sounded as to the danger of urethral injury in the surgical correction of imperforate anus.

Congenital anomalies of the anus and rectum are said by different authors to occur in from one in fifteen hundred to one in five thousand new-borns. In approximately 50 per cent of these anomalies, which vary from rectal stricture to an absence of the lower bowel, there is an associated fistula either to the bladder, urethra, vagina, or perineum. We have reviewed the cases of imperforate anus at the Charity Hospital for the past five years. Fourteen such cases comprise this series, one of which we are here reporting because of an urological complication.

Of the fourteen cases, four had either recto-urethral or recto-vesical fistula present at birth; four had urethral injuries inflicted at the time of surgical correction of imperforate anus with resulting recto-urethral fistula.

EMBRYOLOGY

A brief review of the embryology of the lower urinary tract and lower bowel will enable one to understand better the development of these anomalies. According to Patten,[1] at approximately five weeks of fetal life, the allantois has already been formed from an evagination of the hind gut. The gut just caudal to the origin of the allantois becomes enlarged to form the cloaca. The hind gut at this time still ends blindly, being covered by a thin ectodermal depression under the root of the tail. This depression is called the proctodaeum and the covering termed the cloacal membrane. Normally, the membrane eventually ruptures, establishing the caudal outlet of the gut.

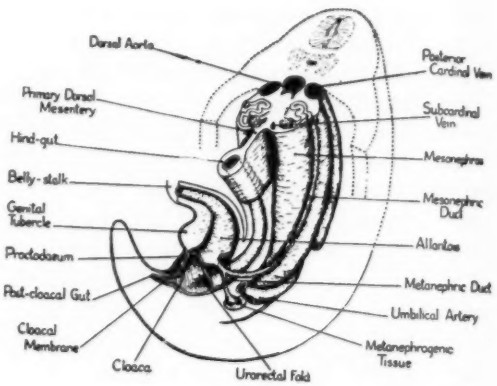

Fig. 1. Schematic ventrolateral view of urogenital system of human embryo between 4 and 6 mm. (fifth week), showing the cloaca before it is divided into the rectum and the urogenital sinus. (Redrawn from Kelly and Burman: "Diseases of the Kidneys, Ureters and Bladder," Fig. 55, courtesy, D. Appleton-Century Co.)

Before this opening is established important changes are taking place internally. The cloaca begins to be divided into a dorsal part, which forms the rectum, and a ventral part known as the urogenital sinus. This division is effected by the growth of the urorectal fold, a cresentic fold, the two limbs of which bulge into the lumen of the cloaca from either side from above downward. As the fold cuts progressively deeper into the cloaca, a wedge-shaped mass of mesenchyme follows into the epithelial fold, thus forming a robust septum between the urogenital sinus and the rectum. The separation of the cloaca is complete before the cloaca membrane ruptures and the two parts, the urogenital sinus and the rectum, open independently. The opening of the rectum is the anus and the opening of the urogenital sinus is the ostium urogenitale.

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Read before the Orleans Parish Medical Society March 10, 1947.

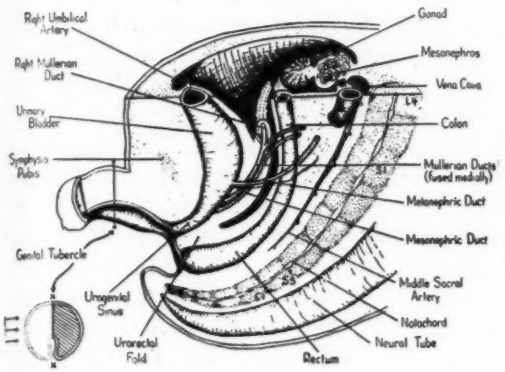

Fig. 2. Semischematic drawing of reconstruction of the urogenital system of a human embryo of eighth week, showing the cloaca completely divided into the urogenital sinus and the rectum by the urorectal fold. (Patton's New Human Embryology, courtesy The Blakiston Co.)

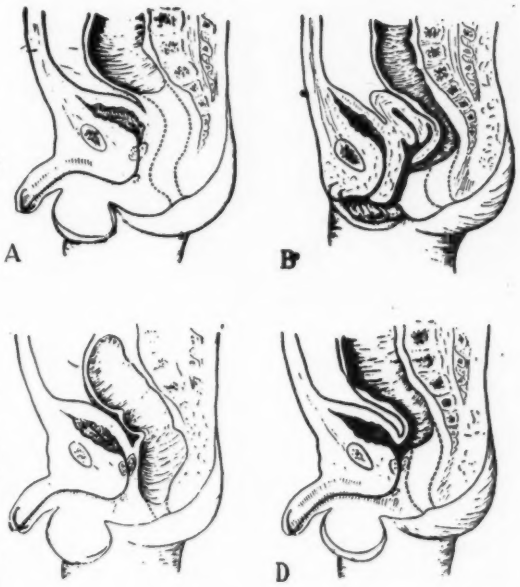

Fig. 3. Anomalies due to disturbances in the development of the cloacal region. (Redrawn from Corning.) *A.* Anal atresia combined with obliteration of lower part of rectum. *B.* Aanal atresia combined with a rectovaginal fistula. *C.* Uncomplicated anal atresia. *D.* Anal atresia combined with rectovesical fistula. ("Abdominal Surgery of Infancy & Childhood", W. B. Saunders 1941, courtesy Ladd & Gross.

Failure of the proper development of the urorectal fold or failure of the cloacal membrane to rupture may result in the deformity of the rectum, bladder, urethra, or vagina. The resulting deformity may be a bifid bladder, imperforate anus, rectovesical fistula, recto-urethral fistula, recto-vaginal fistula, rectoperineal fistula, and possibly a combination of the above conditions.

CASE REPORT

Math Smith, colored male, eighteen months of age. Admitted to Charity Hospital 10/29/46 because of failure to pass his urine through the urethra since operation for imperforate anus eighteen months previously.

PAST HISTORY: Patient admitted to Charity Hospital 8/11/45 when two days old, with a diagnosis of imperforate anus. Physical examination at that time revealed, in addition to imperforate anus, marked abdominal distention and temperature of 102 degrees Fahrenheit. According to the mother's statement, the baby was seen to void normally and an urinalysis was negative. An x-ray of the abdomen and pelvic region was made with the patient in the inverted position, and the gas bubble in the rectum was reported to be approximately 1 cm. from the anal dimple. On 8/13/45, two days after admission, the patient was operated on for correction of imperforate anus. Following operation, the mother stated that the patient did not void per urethrum. Patient was discharged on 9/25/45, the 44th hospital day.

Patient readmitted 10/9/45, when two months of age, at which time he was still passing all the urine through the rectum. Examination revealed the urethra completely obstructed in the bulbomembranous area. Treatment was deferred until the child was older.

PRESENT ADMISSION: The patient's urinary status was the same as on previous admission. His growth and general health were excellent. The urological survey consisted of an urethrogram, which revealed an obstruction in the bulbo-membranous region, and an intravenous pyelogram which failed to outline the upper urinary tract satisfactorily, but showed a partially filled, normal appearing bladder.

On 12/13/46, a suprapubic cystotomy was done revealing a normal bladder. Passage of any type of filiform or sound from below was impossible. Retrograde passage of the sound resulted in prompt entrance of the sound into the rectum through the posterior urethra. In employing sounds from above and below in an attempt to approximate the ends of the sounds, it was found that the retrograde sound did not have sufficient curvature to meet the sound from below. With the substitution of an uterine sound from above, the curve of which was increased sufficiently, it was possible to approximate the ends of the two sounds and to re-establish the continuity of the urethral canal.

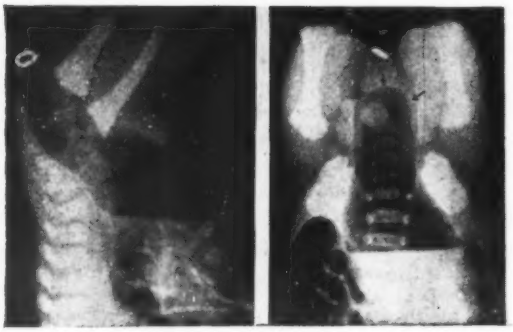

Fig. 4. Roentgenograms of child with imperforate anus to show position of the rectal pouch (outlined with arrows) in relationship to anus (marked with an oval piece of lead.) The child is inverted, so that gas will rise and indicate caudal extent of the rectal pouch. (Fig. 114 "Abdominal Surgery of Infancy & Childhood", W. B. Saunders 1947, courtesy Ladd & Gross.)

Following this, the urethra was dilated up to a #18 French, after which a #10 French catheter was passed with ease. A Pezzer catheter was left in the suprapubic wound and the indwelling urethral catheter was tied in.

The urethral catheter was removed at the end of the third week, and on clamping the suprapubic tube, the patient voided satisfactorily. The suprapubic tube was then removed and the suprapubic fistula promptly healed. The patient was seen again one month later, at which time a #13 sound was passed with ease and the patient was voiding grossly clear urine without difficulty.

COMMENT

Although very little attention has been directed to the likelihood of urethral injury during surgical correction of imperforate anus, in this series of fourteen cases this mishap occurred four times. This is an incidence of a little less than 29 per cent. It appears timely now to warn of the danger of this complication and offer any known preventive measures.

Ladd and Gross[2] recommend dissection of the rectum in the sacral curve rather than anteriorly, to avoid injury to the urinary structures. These authors also advocate an indwelling urethral catheter during the operation so that the urethra may be palpated and injury avoided. If this does not make identification of the urethra satisfactory, it occurs to us that an urethral sound or a solid flexible bougie held in place by an assistant would make palpation of the urethra in the wound an easy matter.

To know the caudal extent of the rectal pouch and to know of the existence of any associated urinary fistula is a pre-operative requisite. In 1930 Wangensteen and Rice[3] described an ingenious method to determine the extent of the blind rectal pouch. It consists of making a roentgenogram of the abdomen and pelvis with the infant in the inverted position. The gas in the colon rises and outlines the distal end of the rectal pouch, making it possible to estimate the distance between the anal dimple and the caudal end of the rectum.

When the dissection has to be carried higher up, urethral injuries certainly would seem to be more likely than when nothing more than the cloacal membrane has to be incised.

A recto-urethral or rectovesical fistula associated with imperforate anus should present no diagnostic difficulty. The presence of mecomium in the urine or passage of gas per urethrum would establish the diagnosis. Furthermore, lateral cystourethrogram should also be made when this condition is suspected.

In the case reported, operative injury of the urethra with a resulting urethrorectal fistula undoubtedly occurred. There was nothing in the operative notes to indicate that urethral injury was suspected by the surgeon who corrected the imperforate anus.

The operation performed is an old procedure used for dilating impassable urethral strictures. The use of a malleable uterine sound, curved to meet the requirements, was prompted by the inability to introduce a rigid sound into the urethra from above.

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CENTRAL FRACTURES OF THE NECK OF THE FEMUR*

A CRITICAL REVIEW OF 300 CASES**

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Every orthopedic surgeon treating "acute," or fresh, fractures of the neck of the femur by internal fixation has been asked by the patient, or relatives one, or possibly all, of the following questions:

(1) What is the chance of surviving the operation at my age?

(2) What chance do I have of the bones "knitting"?

(3) What are my chances of walking again?

(4) Will the hip be painful when I am able to walk?

In addition to these questions, which are of prime importance to the patient, many surgeons, without access to a large series of cases, or without the time to conduct a survey, are interested in mortality rates, unions and non-unions, aseptic necrosis, and arthritic changes of the head of the femur.

A study has been made of 300 cases of central fracture of the neck of the femur treated by internal fixation in which Smith-Petersen nails were used in 285 cases, and Knowles pins in 15 cases. These cases are unselected, and go back to 1930 at which time the first hip was nailed in the clinic. All the cases were considered fresh fractures and were nailed within a period of three weeks following fracture. Many have been nailed of greater duration than three weeks, but have been excluded as it is the general impression that they do not fall into the category of fresh fractures.

Fractures of the base of the neck, and through and between the trochanters are not included in this study as they are extracapsular, and do not present the same difficulties of non-union, aseptic necrosis and degenerative changes of the femoral head that is characteristic of fractures through the central portion of the neck of the femur. The fractures to be considered are intracapsular, and in 1935 Friedrich Pauwels classified them into three groups based upon the plane of fracture through the neck and the corresponding shearing strain. He draws a line horizontally through the anterior superior iliac spines and measures the angle formed by this, and a line drawn through the plane of the fracture. Those cases in which the angle is less than 30 degrees are classified as Type I. Since some orthopedists consider these as abduction fractures and in a relatively horizontal plane, many of which appear roentgenologically to be impacted, and feel that they will heal without operation, they have been excluded from this study.

The angle is from 30 to 50 degrees in Pauwels' Type II fracture, and there is a corresponding increase in shearing strain which necessitates internal fixation of the fracture. In Type III fractures, the angle is from 50 to 90 degrees, and as the angle approaches a right angle, the shearing strain increases in proportion. Only Pauwels' Type II and III fractures are included in the study.

In the group of 300 cases, there were 252 Type II fractures, or 84 per cent, and 48 Type III fractures, or 16 per cent. These 300 fractures occurred in 294 patients, but in none of the six bilateral cases were both hips injured simultaneously.

AGE DISTRIBUTION AND SEX OF PATIENTS

Central fracture of the neck of the femur is an affliction chiefly occurring in females in later life.

TABLE I
AGE DISTRIBUTION

		Cases		Total Per cent
Under 40 years		15		5
40-59 years		50		16
60 and over:	(60-69)	92	(30.6%)	
	(70-79)	87	(29%)	78
	(80-96)	56	(18.7%)	
		300		100

TABLE II
SEX DISTRIBUTION

	Cases	Total Per cent
Female	246	82
Male	54	18
	300	100

*Read before the Sixty-seventh Annual Meeting of the Louisiana State Medical Society, New Orleans, May 14, 1947.

**From the records of Willis C. Campbell Clinic, Memphis, Tenn.

There is such a striking difference between the incidence of the two sexes that there must be definite reasons. It is the impression that elderly men lead a more active life than elderly women, consequently, there is not as much osteoporosis of the bones. The preponderance of women may also possibly be due to their wider pelves, with a resulting genu valgus.

MORTALITY

All patients, relatives, and the surgeon are interested in the first question that presents itself at the time of operation and postoperatively; namely, the survival of the patient.

There were 28 deaths in the first six months following the 300 operations, 21 of which occurred within the first four weeks. An all over mortality of 9.3 per cent appears approximately correct, and an interesting finding in the study was that, of the 65 cases under 60 years of age, there was not a single death. In the decade from 60-69 years, the mortality was 5.4 per cent, from 70-79, 10.3 per cent, and from 80-96 years, the mortality climbed to 25 per cent.

The most common cause of death was pneumonia, and this has apparently been reduced in the later years by internal fixation and getting patients up within a few days to 24 hours, postoperatively. Other causes of death were listed as myocardial failure, coronary occlusion, coronary thrombosis, hypertensive cardiovascular disease, and postoperative infection.

FOLLOW-UP OF CASES

The follow-up of cases of fracture of the neck of the femur has been rather disappointing, probably because of the patients' advanced age, in many cases poor general health, transportation difficulties during the war and, no doubt, many just refused to take the time to return for checkups. The younger groups of patients seemed to return very well, but as age increased, the follow-up declined. As the study progressed, it became increasingly evident that no case with less than one year's follow-up with adequate clinical and roentgenologic data should be included in the statistics of unions, non-unions, aseptic necrosis and arthritic changes of the head. In the younger patients, definite bony union is often seen in the roentgenograms within less than a year. In the greater number of cases, however, it is a mistake to try to determine the presence of union under one year, for occasionally bony union occurs after a year, especially where there is an appreciable absorption of the neck. Of the 300 cases reviewed, only 47 per cent of 141 had adequate follow-up for over one year.

UNIONS AND NON-UNIONS

This is the second important question regarding a fractured neck of the femur in which the principals, including patient, relatives and the surgeon, are interested.

Based on the 141 cases mentioned above, it was found that as a whole, bony union occurred in 86.5 per cent (122 hips) and non-union in 13.5 per cent (19 hips) of the hips. The highest percentage (93.3 per cent) of unions was in 45 cases under 60 years of age, with actually no non-unions in 11 cases under 40 years. In the 96 cases over 60 years of age the percentage of union was 83.3.

There are evidently several factors influencing union of these fractures. The above statistics indicate that bones with senile changes do not unite as readily as younger bones. Some authors have felt that the great shearing strain exerted on the Type III fractures renders them more prone to non-union. In this review, however, the percentage of non-unions was 10.3 per cent (three in 29) in Type III fractures and 14 per cent (16 in 112) in Type II fractures.

The Clinic staff has long had the impression that accurate reduction and proper nailing of the fragments influences union. That there is a certain foundation for this impression is shown by the fact that 69 per cent of the unions had good or excellent reductions and nailings, while there was union in 31 per cent in which the reduction and nailing was either only fair or poor. In the non-unions, ten of the nineteen were attributed to poor reductions, inadequate mechanical fixation and premature removal of the nail. The remaining nine fractures followed satisfactory reductions and nail-

ings, but two were in patients with Paget's disease involving the head and neck of the femur. From this, it is concluded that proper alignment and nailing of the fragments must play some part in union, but there may be other factors that enter into the healing process, not the least of which may be the interruption of the blood supply to the head and cervical fragment.

ASEPTIC NECROSIS

The head and neck of the femur receives its blood supply from the inferior gluteal, obturator and circumflex arteries, mostly through the posterior capsule, and with a small branch, apparently of relative unimportance, through the ligamentum teres.

Injury to the capsule in which the blood vessels are torn or thrombosed at the time of fracture or nailing, may result in aseptic or avascular necrosis of the head. In the group of 122 unions, there were 41 cases which showed aseptic necrosis at some time during the follow-up, this constituting 33 per cent of the group. While the age of the patient seems to have some influence on union of these fractures, there does not seem to be any relationship between age and aseptic necrosis. Of the 11 patients under 40 years of age, three of them showed aseptic necrosis. A check was made of the series of x-rays of the patients showing aseptic necrosis to determine the time of appearance of the changes in the head, and it was found that it was discernible in 19 cases at 9-15 months, in an additional 11 cases in 15-27 months, and in 11 cases after 27 months. From this, it seems that the greatest number of cases begin to show changes in the head at about one year, and that the lapse of time up to about two and a half years, at least, gives no assurance that aseptic necrosis will not develop. In the nonunions, approximately 60 per cent of the cases showed aseptic necrosis of the femoral head.

Absorption of the neck sufficient to be roentgenologically evident occurred in 11 per cent of the unions resulting in partial extrusion of the nail and delaying union.

ARTHRITIC CHANGES IN THE HEAD

The answer to the third question, "will I be able to walk?" can theoretically be answered by saying that all those getting union should be able to walk. However, this is not actually the case, and along with the fourth question, "Will the hip be painful?" they should be considered together because of their intimate association with arthritic changes of the head.

It is unfortunate that the percentage of arthritic changes and aseptic necrosis happens to be the same (33.6 per cent) as the impression is given that all patients with aseptic necrosis had arthritic changes, but this is not the case. Some patients had aseptic necrosis without arthritic changes, and some had arthritis without aseptic necrosis. However, the majority of those with aseptic necrosis had arthritic changes and probably all will eventually have them if weight bearing is carried out over a sufficiently long time.

The arthritic changes in the head were arbitrarily classified as moderate and severe. Under moderate are included those cases with roughening, slight depression, and irregularity of the head, and the severe cases include those in which there has been varying degrees of collapse of the head. Nineteen per cent of the hips (23 hips) showed moderate arthritic changes in the head and 14.6 per cent (18 hips) showed severe arthritic changes. In those cases followed from one to two years only, there was a predomination of the moderate type of arthritis, but as the follow-up extended from two years on to several years, there was an increase of the severe type of arthritis.

Clinically, the patients with moderate arthritic changes have been able to tolerate the pain in the hip for a restricted amount of weight bearing, while those with severe arthritic changes have been definitely handicapped because of pain on weight bearing, having to resort to supports. The time of appearance of arthritic changes seems to follow the time of appearance of aseptic necrosis by several months to a year.

FINAL RESULTS

The final results in this series of cases indicate that the average central fracture

of the neck of the femur has the following prognosis: Mortality 9.3 per cent; poor end result, including ununited fractures (13.5 per cent); and severe arthritic changes (14.6 per cent) 28.1 per cent; fair end result (moderate arthritic changes) 19 per cent; good end result, 43.6 per cent. These statistics are not brightened when it is considered that approximately one-half of the patients showing moderate arthritic changes, or a fair end result, had been followed for only one to two years. No doubt, if these cases are followed for an additional period, several will develop severe arthritic changes. In the end, it can be stated that 43.6 per cent will walk well and normally, and approximately 25 to 30 per cent additional will walk with varying degrees of pain, and varying amounts of support.

COMPARISON OF THE WHITMAN METHOD AND INTERNAL FIXATION

If these statistics present a rather dreary outlook for internal fixation, consider the study made in 1934 by J. S. Speed at the Clinic of 100 cases of central fractures of the neck of the femur, adequately treated by the Whitman abduction method and traced for a period of at least two years. The purpose of his investigation was to determine the percentage of union of the fractures and aseptic necrosis of the femoral head. A comparison of the end results of Speed's series treated by the Whitman method and the present series treated by internal fixation shows:

	Union Per cent	Non-union Per cent
Speed's series (Whitman method)	52	48
Present series (Internal fixation) Memphis, Tennessee.	86.5	13.5

ASEPTIC NECROSIS

Speed's series	35
Present series	33.6

Internal fixation has apparently exerted a rather profound beneficial effect on the percentage of unions obtained in these fractures, but the percentages for aseptic necrosis so closely coincide that it appears the factors influencing aseptic necrosis are independent of the type of treatment used and have not been affected either for better or worse by operative treatment.

The mortality rate associated with the Whitman type treatment has been quoted as varying from 20 to 50 per cent and in some cases slightly higher depending on the individual nursing care the patients receive. Internal fixation seems to be a definite improvement from this standpoint. The manipulative and plaster immobilization method offers the further disadvantages of stiffness of the knee joint which often develops, and muscle retraction produces shearing movements with consequent shortening and frequent rotation of fragments. Internal fixation allows the position of the patients to be changed as often as necessary, and they can be allowed to sit up in bed on the day of operation, and if need be, gotten up into a wheel chair in 24 to 48 hours.

Formerly it was generally felt that internal fixation should be reserved for good surgical risks, but with the mortality rate at its present level, and since the greater percentage of fractures (78.3 per cent) occurs past the time of life when they would be considered good operative risks, it is obvious that only a few would benefit by the procedure if this criterion was maintained. Unless moribund on admission, the patient is entitled to the advantages of the operation.

OPTIMAL TIME FOR OPERATION

There is some diversity of opinion as to how long operation should be postponed following the accident. At the Clinic, it has been found highly advantageous to the patients to operate on them within the first 48 hours. A large percentage of the patients arrive within this period. Most all of them have required an opiate for relief of pain, and on arrival, have usually had very little or nothing to eat or drink. Some are vomiting and practically all are dehydrated and in an early state of acidosis. During this period, it is usually fairly simple to restore them to somewhere near the state of health they enjoyed previous to the accident by the use of saline and 5 per cent glucose solution. This is probably the main argument for early nailing at the Clinic. It has also

been found that these elderly patients are not comfortable in traction or splints. Every movement of the hip is painful, and in self defense, they lie quietly on their backs, which invites hypostatic pneumonia and decubitus ulcers. The pain experienced in attempting to move, as in getting on and off the bed pan, has caused the Clinic to adopt the policy of not giving preoperative enemas. Most of them have eaten very little prior to operation, and the enema can be postponed to the second or third postoperative day, at which time it can be given without too much discomfort.

TYPE OF OPERATION EMPLOYED

The simple technic of so-called "blind nailing" without opening the hip joint is used in internal fixation of these fractures. Roentgenographic control is used and sodium pentothal is employed almost universally as the anesthetic. The fracture is reduced by manipulation and roentgenograms taken in the anterior, posterior and lateral views to verify the reduction. After routine surgical preparation, a short longitudinal incision is made down to the bone. A guide wire is inserted through the shaft and neck into the head, and if roentgenograms show the wire to be in proper location, the nail is driven in over the wire. Final x-rays are made to check the position of the nail and the wound closed. Operative time varies from 45 minutes to an hour and a half.

Postoperatively, no immobilization is used. Bed rest is usually employed for two months during which time the patient is gotten up in a wheel chair daily. At the end of two months, the patients are up on crutches and partial weight bearing may be started at three months. Full weight bearing is not allowed until union can be demonstrated by x-rays, which varies from less to more than a year.

REMOVAL OF THE NAIL

The nail should not be removed until roentgenograms show that solid bony union has occurred with trabeculations across the fracture line. Since this usually occurs at about one year, it is the impression at the Clinic that the nail should not be removed under this time. In nine of the cases of non-union, the fracture repair appeared to be progressing satisfactorily and the nail was removed at four to ten months postoperatively following which whatever union was present disintegrated, and the fragments separated. These cases occurred in the early 1930's at which time the nail was removed as early as possible. At present, if the nail is causing no difficulty, it may be left in place indefinitely.

CONCLUSIONS

1. A sufficient number of fresh central fractures of the neck of the femur has been studied to enable the surgeon to give the patient and relatives an approximate idea or outline of what the future holds for them.

2. Evidence has been introduced to show the superiority of internal fixation over the Whitman method of manipulative reduction and plaster immobilization.

3. It is evident from the data presented that non-unions have been markedly reduced by internal fixation, but the problems of aseptic necrosis of the femoral head, and the treatment of patients with severe degenerative arthritic changes, are still very formidable ones.

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DISCUSSION

Dr. H. T. Simon (New Orleans): I first desire to congratulate Dr. George on his excellent presentation. I do not know that much could be added along the lines of his presentation. It would be amiss, in discussing internal fixation of hip fractures, not to recall to this audience the fact that many years prior to the Smith-Peterson nail, internal fixation on hip fractures by means of iron (wood) screws was described and used in the City of New Orleans, by Drs. E. H. Parham, and Denegre Martin. This work was elaborated by Drs. Isidore Cohn, Rogers Brewster, Will Bradburn, and many others. Unfortunately, radiographs were not obtainable in operating rooms and shock proof x-ray units were not available when their method

was first described. If such had been the case, I am certain that the internal fixation, as described and practiced by Drs. Parham, Martin, and their associates, would have been more generally accepted by the bone and joint surgeons of this and other countries. I do, however, believe that their pioneer work was of definite help in the evolution of internal fixation of hip fractures.

The problem of treatment of hip fractures has been solved from the standpoint of union but as pointed out by Dr. George, there is still bone necrosis and arthritis with which to contend. It must be remembered that fractures of any joints of older individuals are associated with arthritic changes and dysfunctions, together with discomfort. It is not amiss then to expect these changes in hip fractures. It would also appear impossible to eliminate bone necrosis and arthritis in a certain percent of these fractures.

Dr. J. T. O'Ferrall (New Orleans): I am sorry I did not hear the beginning of this paper. It was very interesting and Dr. George's results appear to be about the average with the Smith-Peterson nail. Personally, I am against the nail; I think it displaces too much bone, is more difficult to insert and requires, as a rule, a general anesthetic. Dr. George mentioned that he had used this procedure on one lady 96 years old. I do not believe a general anesthetic is a good thing for these old people. I do not agree with the time at which reduction is essential. I think these people as a rule have a certain amount of surgical shock and reduction should not be attempted for a week or ten days after. I have had several people who needed reduction and nailing who have died while we were waiting for them to recover from the surgical shock; not from pneumonia or heart failure, but purely surgical shock. Among the Mayo men, Dr. Myerding and Dr. Henderson said we should wait two or three weeks, if necessary, to give these people opportunity to recover from shock. So many of the surgeons I know become quite excited and want something done immediately. I think traction is the immediate necessity. I believe the Smith-Peterson nail is too large and displaces too much bone. I think it is shown very admirably in Dr. George's slides how difficult accurate insertion is. I do not believe the bone changes shown in the slides are an arthritis; they are an osteochondritis. It is almost like a case of Perth's disease. In fractures of the hip it is not the head that necroses but the femoral neck that necroses. I do not want to be put in the position of criticizing the doctor just to be criticizing. I think some of his results are excellent but I believe if you can do these cases under a local anesthetic and with multiple pins it is a better procedure. I prefer Bohlman pins with slight modification. You can insert them with a drill. With a Smith-Peterson nail you can hear them being driven in all over the operative floor, and the large nails frequently slip out. I believe mechanically, it is bad because of the size. I believe if you will put in smaller nails you can do it more quickly and more accurately, and not have a chance of asceptic necrosis, certainly not of the head. The Bohlman pin is not a small pin like the Moore pin. The Bohlman pin has a small hole in the distal end in which you put a wire, and this makes the three pins virtually one pin. If you put them in in three different directions and wire the ends together, I have never had any work out. I have had Moore pins back out, however. I ceased to use those many years ago.

Dr. M. M. Bannerman (Baton Rouge): I would like to say that I enjoyed Dr. George's paper and feel that his results as far as mortality reported an accurate picture of the condition. There is one thing I think we should consider very strongly in people with fractures of the neck of the femur: practically any patient with fracture of the neck is entitled to surgery for that condition for these reasons: it will prevent those patients from becoming bedridden, not being able to walk again and from living a life of invalidism from then on out. I think any patient with fracture of the neck of femur, regardless of age and the fact that he might be in shock, barring those cases, at least should have the opportunity for surgery.

Dr. George (in closing): I would like to thank Drs. Simon, O'Ferrall and Bannerman. In answering Dr. O'Ferrall, I will say that we have used Knowles pins in the nailing of these hips. They are small pins. We have used three or four pins in a fracture but have never been able to get them in so that the head will stay with the distal fragment of the neck. We have been able to put Smith-Peterson nails in and if there is absorption of the neck, which there is in 11 per cent, the nail backs out. We feel that we get better results with the Smith-Peterson.

DOUBLE NOTCHED GRAFT FOR LUMBOSACRAL SPINE FUSION*

ALFONS R. ALTENBERG, M. D.†
NEW ORLEANS

The treatment of painful lesions of the lumbosacral area of the spine by spine fusion has been attended in the past by failure of fusion in from 15 to 50 per cent of cases. One reason for this failure has been the difficulty in securing proper mechanical fixation of the graft and proper postoperative immobilization of the area

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grafted. The spine lends itself poorly to the use of screws and plates, although these appliances have been employed by some authors. Certainly no one believes that the spine can be immobilized rigidly in a cast or any other form of external appliance.

In 1942 Bosworth[1] described a double notched tibial graft for use in lumbosacral spine fusions. Similar grafts have been described by Moore[2] and Breck and Basom.[3] The double notched graft seems to provide rigid fixation of both the graft and the area to be fused in a manner not possible with the usual technics of Hibbs, Albee, and their modifiers.

The technic of the double notched graft is not dissimilar to the usual spine fusion other than the preparation of the graft bed, the shape of the graft, and the use of both iliac and tibial bones. The routine linear incision extending from the second lumbar to the second sacral spinous processes is used. The spinous processes and laminas are exposed by subperiosteal dissection laterally as far as the articular facets. All cortical bone is removed from laminal plates and spinous processes to provide a vascular osteogenetic bed for the grafts. The spinous process of the most superior vertebra to be fused is notched caudally and the lowest spinous process to be fused is notched cephalad. Intervening spinous processes are resected at their bases. The kidney bar on the operating table is raised at this point to place the spine in maximum flexion. The distance between the notches is then measured with a caliper to determine the length of the tibial graft and the depth of the notches in it. A tibial graft of these measurements is cut, notched at each end, with its length between notches exactly the same as the distance between the notched spinous processes. The graft, which is roughly in the shape of the letter "H", is then placed with its notched ends engaging the notched spinous processes. When the kidney bar of the table is lowered, the spine attempts to go into extension, but in so doing rigidly locks the graft in place. In this manner both the graft and the lumbosacral spine becomes rigily fixed, so rigidly in fact that one can almost lift the patient off the table by the graft. Iliac bone removed through a separate incision is then placed beneath the tibial graft to provide rapid formation of new bone and consolidation.

Postoperative care is simple. The patient lies on a board bed for two weeks after which he is fitted with a wide lumbosacral brace and permitted to be up and about. The brace is worn for approximately six months, at which time fusion usually is radiographically solid. Bending, stooping and lifting are restricted during this period.

During the past two and a half years this grafting technic has been performed by members of the orthopedic department of the Ochsner Clinic on 34 patients, 24 of whom have been examined six months or more after operation. The entire group of 34 patients represents less than 5 per cent of individuals seen in the department because of pain in the back. In all other patients conservative treatment has been adequate to control symptoms. The primary indication for the operation is pain in the back caused by lack of bony stability or a localized bony lesion and not relieved by conservative measures (table 1). There

TABLE 1
INDICATIONS FOR SPINE FUSION

Spondylolisthesis	13
Root syndrome (ruptured disk, etc.)	8
Congenital deformity	2
Traumatic arthritis	1
Total	24

were two failures of fusion in the 24 cases, an incidence of 8.3 per cent (table 2). This figure compares favorably with the previously reported percentage of failure of from 15 to 50 per cent.

TABLE 2
RESULTS OF SPINE FUSION

Functional Result	Cases	Per Cent
Excellent	15	62.5
Good	4	16.7
Fair	2	8.3
Poor	3	12.5
Total	24	
Failures		
Anatomic (failure of fusion)	2	8.3
Functional (psychoneurosis)	3	12.5
Total	5	

Three cases were considered functional failures. The emotional stability of these patients was not adequately evaluated

prior to fusion. All of us realize that low back pain represents one of the most common symptoms of psychoneurosis. Like the remainder of the series these three persons had well defined organic lesions, but their long standing pattern of functional or emotional instability was not appreciated until after operation. All three had successful anatomic fusion which should have relieved their symptoms if they were strictly on an anatomic basis. From their previous histories and subsequent evaluation by psychiatrists, it was shown that on a psychiatric basis alone, these patients should not have had spine fusion. It was after analysis of these functional failures by both the orthopedists and the neuropsychiatrists that it was decided that a preoperative neuropsychiatric examination would be done routinely before performing spine fusions. No operation on patients considered emotionally stable by the neuropsychiatric department has resulted in functional failure.

CONCLUSIONS

1. The double notched prop graft for lumbosacral spine fusion will give a higher percentage of successful fusion than other technics.

2. The patient is more comfortable postoperatively since this grafting technic is mechanically stable and does not need plaster casts in the postoperative period.

3. Neuropsychiatric examination of patients before operation is to be recommended as it will give the surgeon some insight as to the expected functional results in elective operations.

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CONGENITAL OCULAR ANOMALIES RESULTING FROM (a) PREMATURE BIRTH (b) RUBELLA INFECTION OF MOTHER DURING PREGNANCY*

W. R. BUFFINGTON, M. D.

NEW ORLEANS

Congenital anomalies and lesions in premature infants have been seen and recognized as such for many years. But in recent years, saving the lives and lowering the mortality of premature infants is a result of advancement in medicine. Because of this the congenital defects in this group of infants is becoming far more frequent.

Terry, in 1942, refers to a peculiar ocular condition in twins born two months prematurely which he termed premature and fibroplastic overgrowth of a persistent vascular sheath behind each lens. In his cases the membrane did not cover the entire posterior surface of each lens. In other words, after dilating the pupils a clear fundus could be seen.

In infants born sufficiently prematurely, the pupillary membrane can be observed with ease and the presence of the posterior part of the tunica vasculosa lentis and the hyaloid artery can nearly always be seen because they do not disappear until later in fetal life, usually four to six weeks before full development.

Terry states after careful study that the so-called persistent tunica vasculosa lentis consists of a growth of embryonic connective tissue of the tunica vasculosa network in the form of a retrolental fibroplasia. It usually consists of a fibroplastic sheath behind the lens. It is sometimes seen in children born at full term and is usually seen a few days after birth. In full term infants the condition is unilateral. Because of its peculiar appearance, the clinical diagnosis is usually glioma, and the mistake is not discovered until the specimen is examined pathologically.

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In the report of some of the cases it was found that, at the birth of extremely premature children, the tunica vasculosa lentis was still functioning. This can be observed sometimes four to six months after birth. The following are the changes often seen in this peculiar type of anomaly in the eye of premature infants.

1. As you look through the pupil you see a grayish mass which is the result of the changes due to fibroplasia of the tunica vasculosa lentis.

2. There may be a typical hyperplastic tunica vasculosis. Immediately behind the crystalline lens are seen the hyperplastic changes and behind it is a dark line, the remains of the hyaloid artery, which of course is always connected with the tunica vasculosa lentis in embryonic life. As previously mentioned, in the normal embryo at the end of nine months, the vascularized tissue known as the tunica vasculosa lentis, and the hyaloid artery have disappeared and it is only with a high-powered microscope that the remains can occasionally be seen. But in the premature eye they have not developed the necessary changes to clear up and destroy this embryonic vascularized tissue, hence the reason for the formation of this fibroplastic growth of the tunica vasculosa lentis in premature infants.

Now the question remains as to treatment. It is fortunate, indeed, that we do not have to remove the eyes of these children because there is a certain amount of vision, even if it is not much better than light perception. In looking at these patients it would seem an easy matter to remove the crystalline lens which is generally subluxated backwards by traction, or to make a discission of the fibroplastic tunica vasculosa lentis behind the lens. Some operators have obtained good results but in most cases the operative results have not been very favorable. Radiation has been tried but has proved valueless. In removing the lens or doing a discission, very often a persistent glaucoma will result.

Reese and Payne reported similar cases, with the complications which later developed. Some had early intraocular hemorrhages, other later in life developed glaucoma for which operations had to be done. They also called attention to the fact that these congenital anomalies can be clinically taken for glioma. Of these cases, 12 had to be operated on for glaucoma. In two or three patients, however, the membrane was opened up, the opaque lens removed, and there seemed to be an improvement of vision in the operated eye. It is remarkable and fortunate that these premature babies develop a normal mentality. The twins I am reporting show all the evidence of being normal in every way except the ocular defect.

CASE NO. 1

In 1945, was born prematurely at seven or eight months, a four and a half pound boy. He was kept in an incubator for a time. It was discovered a little later that something was wrong with both eyes. A very competent oculist in another city made a diagnosis of advanced bilateral glioma, advised removal of the eyes. I saw the child in consultation. After dilating the pupils, the baby was given an anesthetic. On examination it could be seen that the condition in both eyes was a peculiar thick disc-like membrane behind each lens. Seemingly, the lenses were slightly subluxated, so we came to the conclusion that it was a typical case of bilateral retrolental fibroplasia. I had occasion to see this boy for some time and condition remained absolutely stationary. Slight subluxation of the lenses I think results from the traction of the retrolental fibroplasia.

CASES NOS. 2 AND 3

Twins, V. M. and D. M., born prematurely at seven months, weighed three and a half and four pounds respectively. They were in an incubator five weeks. Four months after birth, parents noticed evidence of defective vision and they consulted Dr. Lorio. I quote a letter from Dr. Lorio on these cases:

> "I am referring to you D. and V. M., age six months, twins. These were premature children (seven months). Everyone in the family healthy. I first saw them today, three of the eyes looked exactly alike but the left eye on one seemed less involved so I put a drop of atropine in the left eye and a drop in the right eye of the other child. Examination showed a white substance filling the posterior surface of the posterior chamber. On the left eye examined the retina could be seen on the nasal side but bulging into the posterior chamber, from the temporal side, could be seen a very definite mass. After finding this condition I

realized that I would go no further without consultation; therefore, I would not examine under anesthetic as you might want to do the same and this would have subjected them to two anesthetics. I do not know of any disease except glioma that looks like this, but treatment being so drastic if it is glioma, I would not advise without a consultation. I have never heard or read of four gliomas in twins, yet that would be my diagnosis."

These children were first seen by me October 10, 1946. The grayish mass as noted by Dr. Lorio was very evident. They had all the appearance, therefore, of being either a tumor extending up from the posterior aspect of the eye, or being a dense, peculiar, opaque, irregular membrane behind the lens. They were again seen in January, 1947. V., at that time, showed that right eye anterior chamber was shallow, lens opaque and disc-like in shape and dislocated upward and slightly inward. The iris was not tremulous. Left lens was dislocated temporally and the fundus could be seen distinctly through the dilated pupil. There seemed to be some peculiar congenital anomaly in and about the optic disc but he does have evident light perception.

D., at that time, also showed shallow anterior chamber, pupils dilated 4 mm., right eye, lens subluxated up and nasally, left lens dislocated directly backwards. The lenses were becoming opaque but the sheath of fibroplastic tissue was seen distinctly behind it. These eyes likewise seemed to have a certain amount of light perception. The lenses are dislocated backward I think due to the traction made by the retrolental fibroplasia. When seen in January and again the last time in April, 1947, it had become evident that the abnormalities in the eyes of the two children were not glioma and it would not be necessary to remove the eyes, hoping that there might be saved a certain amount of vision.

CONGENITAL ANOMALIES FROM RUBELLA INFECTION OF THE MOTHER DURING PREGNANCY

In 1941, following an epidemic of rubella or German measles in Australia, Gregg, of that country, reported a large number of children with congenital cataract born of mothers who had rubella in the early weeks of pregnancy. Gregg's report is based on 20 cases of his own and 58 reported to him by colleagues. In these cases most babies were small and ill-nourished and difficult to feed.

All babies had cataract from birth, all were bilateral except 16. In most cases the opaque lens was pearl grey. Nystagmus became manifest after three months.

Five per cent of the 78 cases had congenital heart lesions. In the series early death was recorded in 15. It was noted without exception that there was a marked intolerance to atropine.

ETIOLOGY

Based on the date of birth of each one of the series affected and the history given by the mothers, it was noted that the larger percentage came from mothers who had suffered from German measles in early pregnancy, usually in the first or second month. In some instances the mother did not realize she was pregnant at the time of the infection.

In 1944, Reese reported three cases. All three had congenital cataract and congenital heart lesions. All mothers contracted rubella during the first month of pregnancy. He advises early operation since it is noted that nystagmus does not come on until after three months in most cases.

Long and Danielson call attention to 61 women who contracted German measles during pregnancy. Forty-one bore children with congenital defects. Of these 15 had cataracts. They report six cases with cataract. All the mothers had the measles during the first six weeks of pregnancy. All six cases had, in addition to the cataract, some type of cardiac lesion. These cases showed some evidence of micro-ophthalmus.

Cordes and Barker state that since publication of Gregg's paper 170 cases of rubella during pregnancy have been reported, 125 of which, or 75 per cent, were followed by congenital cataract or lens defect in the child. In all these cases the mother contracted rubella during the first three months of pregnancy. One case had a lens defect reported after the third month.

Goar and Potts report five cases seen and operated. They also advise early removal of the cataracts.

Krouse reviews the reports of Swan in a series of 74 cases covering the years 1939 to 1943. In these cases a definite history of rubella in 61 mothers during pregnancy showed 20 infants had no ocular or other lesion. The mothers of these infants had rubella late in pregnancy. Of 41 infants who had congenital ocular and other defects,

the mothers dated the rubella before the fourth month. The leading congenital anomaly was the eyes, notably cataract, when the mother became infected three weeks to three months after pregnancy.

Finally, Rones reports that The State of Australia, after Gregg's report, sent out a committee to investigate the matter. The committee's conclusion was if a woman contracts rubella in the first two months of pregnancy, chances for giving birth to a congenitally defective baby were almost 100 per cent.

Statistical data accumulated since Gregg wrote his paper have proved that children of mothers who have contrated rubella or German measles after the fifth month are usually free from these peculiar anomalies. There has been no treatment which could be given the mother in the form of vaccine or otherwise, which could prevent these defects in children. It would be interesting for us to study the effects of other contagious diseases on the embryo.

I wish to report the following cases which belong to this group:

CASE NO. 4

This patient was first seen December 17, 1943, aged 10 months, with a right and left cataract since birth. The mother gave a history of having German measles eight months before the baby was born. Immediately after birth, the child had to be given nine transfusions. She was also given vitamin K for petechial hemorrhages. She had no congenital cardiac lesion. Slight microcornea, nystagmus, pupils active, pearl grey opaque lenses in both eyes. On May 9, 1944, a discission was done on the right eye. On June 13, 1944, a second discission was done on the same eye. On August 15, 1944, a discission was done on the left eye. In both eyes the lens were found to be undeveloped. Because of lack of cooperation, it was impossible accurately to determine the visual acuity. Approximately + 13.00 sph. is about the correction of each aphakic eye. Her vision is definitely imperfect, due to congenital amblyopia.

CASE NO. 5

Baby H., 6 months, seen in consultation. A diagnosis was made of: (1) congenital bilateral cataract, (2) pediatrician found baby had definite congenital heart lesion. It will be wise to remove the cataract within the first six months. In the light of our present knowledge we must be cautious in giving a prognosis. Other congenital ocular defects may be present as in Case 4.

When to operate on these babies is important. Some doctors suggest early operations, others believe that because of the low resistance of these infants, operations should be delayed. In my opinion, the cataract should be removed just as soon as the child has normal resistance. This usually will take place within three to six months after birth.

DISCUSSION

Dr. Paul L. Marks (Baton Rouge): This little baby Dr. Buffington saw was a full term child. The mother had rubella when between seven and eight weeks pregnant. She had two other children who contracted it and gave it to her. When the child was born he weighed slightly more than five pounds. In addition to having what is thought to be a congenital heart lesion the little boy has a thyroglossal duct cyst. I had hoped to operate when he was about four or four and a half months old, which would be within the next week or so, but unfortunately the child got chickenpox this week so we will have to postpone this somewhat. I have made an effort to dilate this child's pupils with 2 per cent homatropine and paradrine. One pupil dilates very well; the other does not. In the one that does not I have used several other things with an equal amount of no success. I therefore plan to operate on the eye with the better dilated pupil first. The two cataracts are not the same. One is far more complete than the other. The one more complete is the one in which the pupil does not dilate well. When the child was three months old he developed nystagmus in each eye and had definite convergent squint at that time. I think he would be better off if he could have been operated sooner. It is not a good prognosis but we hope for the best.

Dr. N. T. Simmons (Alexandria): Dr. Buffington has brought something to our attention in his usual comprehensive and illustrious manner and leaves very little to say. It is a new subject comparatively speaking and very few statistics have been compiled on it. Some definite statistical studies should be made and after observation and consultation with the pediatricians, cardiologists and possibly the neuropsychiatrists, an attempt should be made to determine if German measles is a justifiable cause of interruption of early pregnancy. While this seems radical today it may be found advisable after a thorough statistical study by the various branches of medicine concerned.

I can not add very much to the subject other than to agree with what Dr. Buffington has said. We all see gliomas and pseudogliomas and frequently are undecided whether to diagnose it glioma and enucleate or to wait and observe it longer. No one wants to enucleate an eye but at the same time if it is glioma and you do not enucleate you

will regret it later. I have taken advantage of Dr. Buffington in the past by having him see these patients in consultation, letting him decide what is best to do.

Dr. Charles A. Bahn (New Orleans): We are indebted to Dr. Buffington for presenting several interesting diagnostic and pathologic problems. Retrolental fibroplasia is a degenerative process resulting from interference with normal structural and functional fetal development. Its differential diagnosis is based essentially on its being non-inflammatory and stationary, and on the frequent association with other ocular and extra-ocular evidences of interference with normal development. Retinoblastoma and endophthalmitis are progressive or inflammatory. Cataracts associated with a rubella maternal infection during the first three months of pregnancy are diagnosed by the history of infection, the distinctive types of lens opacities, and by extra-ocular sequelae especially cardiac lesions, microcephalus and deafness. The unborn child is protected from most maternal infections. In measles, chickenpox, and possibly other virus diseases, this protective mechanism does not usually exist during the first part of pregnancy, and in syphilis does not exist throughout pregnancy. It is therefore important that all expectant mothers be advised to avoid all possible contact with measles and immunized if exposed. The advisability of therapeutic abortion is a responsibility which must be seriously considered.

Dr. M. C. Wilensky (New Orleans): I would like to ask a question: Has anybody ever done any statistical work as to how many mothers with measles have normal babies? I think we should ask obstetricians and pediatricians to report mothers with measles during pregnancy and who give birth to normal children.

Before we can feel sure that measles is the causative factor, we need to compare more statistical evidence at to the incidence of cataracts and other congenital defects in infants born of mothers who had and who did not have measles during early pregnancy.

After all we know a number of infants with congenital cataracts or other defects are born of mothers who did not have measles during pregnancy.

Dr. Buffington (in closing): This has been brought out clearly, that if the mother is pregnant and contracts measles during the first four to eight weeks, the congenital anomalies like cataracts and other changes in the new born occur in nearly a hundred per cent of them. That is so striking that there is something showing definite relationship between the infectious diseases and ocular manifestations. Further, Gobbels took statistical data on 50 or 60 cases with German measles after the fifth month and in those cases the children were all born normally.

INTRAVENOUS ETHER* (DIETHYLOXIDE)

USE IN THE TREATMENT OF CASES OF IMPENDING GANGRENE AND IMPAIRED CIRCULATION

O. C. WILLIAMS, M. D.†

NEW ORLEANS

In February of 1946 I attended a meeting of the Orleans Parish Medical Society and heard Dr. Robert Katz read a paper, giving his experience with the use of ether (diethyloxide) as a treatment for cases of impending ischemic gangrene. This preliminary report was discussed by Dr. Rudolph Matas. The report was published in the New Orleans Surgical Journal of June 1946, giving the results of the use of ether, by the intramuscular and intravenous routes. It is noted in the reprint that Dr. Katz has mentioned the work carried on at the U. S. Marine Hospital at New Orleans by Dr. A. H. Lawton and myself in the intravenous use of ether for treatment of impending ischemic gangrene cases.

After hearing Dr. Katz's preliminary report, I became interested and with the consent of our Commanding Officer I contacted Dr. Katz and with his help started treating our first case March 1, 1946.

I have been asked to present to you this evening the results we have obtained. To date we have completed treatment on 21 patients, and have one in the hospital at the present time receiving treatment. This patient is now on his 24th bottle, and this makes a total of 22 cases in our series.

I realize that the number is small, but I believe our results from the use of the drug are well worth reporting. We have used a 2½ per cent solution of ether, namely, 25 c. c. of stock ether to a 1000 c. c. of 5 per cent glucose in distilled water or in normal saline, in all of our cases. The 1025 c. c. of solution is given daily, intravenously, starting the flow at 40 drops per minute, and if no reaction stepping it up

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to about 50 drops per minute, but not over 60 per minute. We decided that 12 bottles would represent a course, and then give a few days rest, and repeat all laboratory tests before starting on a second course.

All patients were thoroughly studied prior to treatment. This consisted of a careful history, complete physical examination, including a chest x-ray and an x-ray of extremities for evidence of sclerosis, a P.S.P., B.S.P., N.P.N., blood chloride cholesterol icterus index, blood sugar, cephalin flocculation, a.g. ratio Wallace Diamond, sedimentation rate and complete blood count determination. Kodachrome plates were made of the extremities. All of the laboratory tests were repeated after a course and the picture was also repeated.

Blood pressure readings and pulse and temperature records were made during the administration of the drug.

The first patient upon whom we used the drug, was a 62 year old seaman who was admitted to the hospital in December 1944, with the diagnosis of general arteriosclerosis, and gangrene of the toes of the left foot. Sympathectomy was done on December 18, 1944. The result was poor, making it necessary to amputate the left leg, at midthigh, January 5, 1945. The latter part of February 1946 the patient developed redness of right foot with beginning gangrene. We started I.V. ether on this patient March 1, 1946. He had a total of 37 bottles; however, we were unable to save the right foot and amputation, Callander, was done April 6, 1946. His postoperative recovery was uneventful, and the amputation stump is well healed. Although the intravenous ether did not save this patient's foot, we noticed that it gave him relief of pain.

We continued using the treatment on cases of impending ischemic gangrene, but did not limit our treatment to this type of case alone. The following is a compilation of types treated.

TYPES OF CASES

Thrombo-angitis obliterans	9
Diabetic ischemic limb	1
Arteriosclerosis	5
Ulcer, hypostatic	5
Neurodermatitis	1
Neuritis	1

All of our patients were males and the average age was 47.3 years, the oldest 64 and the youngest 19. The best results were obtained with patients with Buerger's disease and the diabetics. We have estimated our results as good, fair or poor based on subjective findings and objective proof of improvement. We were unfortunate in not having a thermographic machine, which might have given more concrete evidence of improvement.

RESULTS OF TREATMENT

	No.	Good	Fair	Poor
Thrombo-angitis obliterans	9	8	0	1
Diabetic ischemic limb	1	1		
Arteriosclerosis	5	3	1	1
Hypostatic ulcer	5	3	2	
Neurodermatitis	1	1		
Neuritis	1	1		

SIDE EFFECT FROM TREATMENT

Emesis	2
Euphoria	0
Drowsiness	0
Excitement	0
Hysteria	0
Convulsions	0
Extravasation of solution into tissue of arms	1

There was no change in the blood pressure readings, pulse, and respiration in the first 21 patients treated. The majority of these received nicotinic acid during the treatment. The patient now under treatment has received no nicotinic acid and rise in the blood pressure occurs during each infusion.

In only one case was there a change in any of the blood chemistry determinations. This patient showed a slight increase in B.S.P., but it promptly improved with intravenous glucose and later checks have revealed normal findings.

CASE REPORTS

Cases No. 2, 3, 4, 9, 10 of Buerger's Disease had received surgical treatment before the administration of ether. Cases No. 5, 6, 7, 8 had not received surgical treatment.

No. 1. Male, white, age 64. Reported in paper. Arteriosclerosis with gangrene.

No. 2. Male, white, age 35. Admitted January 12, 1946. Diagnosis: Buerger's; ulcer of stomach. Chief Complaint: Cold and painful hands and feet. Duration 3 years. 1½ years ago gangrene of 2nd toe, right foot. One year ago had bilateral sympathectomy and amputation of 2nd toe. No sweat-

ing of leg now. Continues to have pain. Cyanosis of fingers and toes. No dorsalis pedis pulse. March 16, 1946—10 bottles of ether solution and nicotinic acid 200 mgm. t.i.d. Discharged April 5, 1946, free of pain in feet; hands were warm, and color good. All laboratory findings were negative. Seen as an outpatient on September 28, 1946—no pain in legs. Free of symptoms.

No. 3. A. B., Male, white, age 59. Admitted March 9, 1946. Diognosis. Buerger's—since 1927. Intermittent claudication. 1923 sore on right foot, amputation mid-thigh right. Pain in left leg has increased past 14 years. Refused sympathectomy for left side 1941. Sores developed on ankle. Numbness and pain in 5th finger each hand. Leathery feel to skin left leg. Dorsalis pedis pulse absent. Scaling ulcer present. Toes cold and cyanotic. Negative laboratory findings. March 16, 1946—23 bottles of ether solution with nicotinic acid 200 mgm. t.i.d. Discharged April 10, 1946. Results good. Discoloration of leg cleared. Pain and tingling subsided. Ambulatory without claudication. Foot pink and warm. Relief in two days after treatment started.

No. 4. B. W., Male, white, age 35. Admitted March 13, 1946. Diagnosis: Buerger's. Chief complaint: Cramps in leg. In August developed a pain in left foot. Examined in Galveston and New Orleans with an instrument and told he had Buerger's. Had lumbar sympathectomy block with lasting relief one month. Pulse present. Continues to have cramps in leg. Laboratory findings and x-ray negative. March 25, 1946—22 bottles of ether solution with nicotinic acid 200 mgm. t.i.d. Discharged April 20, 1946. Good results. Free of pain. No claudication after long walks. Seen as an out-patient on November 25, 1946, free of symptoms. Has returned to duty.

No. 5. D. L., Male, age 51. Admitted June 28, 1946. Diagnosis: Buerger's and ulcer. Frost bite 1918. 1926 intermittent claudication continued 1940. Has had ulcer intermittent on 2nd toe, right foot, past 12 years. Received treatment of various types without success. Laboratory findings negative. Ulcer was present on 2nd toe and was painful Ether solution, 24 bottles, started July 6, 1946. There was complete healing of the ulcer, and freedom from pain when discharged July 31, 1946. Seen January 1947 and is well. No nicotinic acid.

No. 6. G. G., Male, white, age 61. Admitted May 2, 1946. Diagnosis: Buerger's and ulcer. Unhealed ulcer right ankle. Pain in legs on standing and walking, poor pulse. Laboratory findings and x-ray negative. EKG negative. A course of ether solution of 8 bottles was started May 13, 1946, and nicotinic acid was given. Discharged June 1, 1946, ulcers healed, no pain on long standing or walking.

No. 7. B. R., Male, white, age 31. Admitted July 28, 1946. Diagnosis: Buerger's. Angiospasm with gangrene of 2nd toe, left. Blister on toe six weeks prior to admission, became worse. Reduced pulse in dorsalis pedis. August 5, 1946 treatment was begun—24 bottles ether solution and nicotinic acid. Never free of pain but became dry gangrene. Sympathectic block September 18, 1946, results good; sympathectomy, left September 23, 1946, results good. Final amputation 2nd toe, left, October 9, 1946. Discharged, well healed, free of pain November 21, 1946.

No. 8. W. C., Male, white, age 61. Admitted February 7, 1946. Diagnosis: Buerger's with burns; Arteriosclerosis, general. Burns of feet and ankles—4 days duration, 1st, 2nd and 3rd degree. Burns healed, pain continued. Heavy smoker. Told he did not have pulse in foot 1 year ago. Skin brawny. Intermittent claudication. Treatment consisted of 24 bottles ether solution with nicotinic acid March 29, 1946. Second course—12 bottles April 29, 1946. Discharged May 16, 1946, results good, burns healed, no pain after long walking. Slight increase in B. S. P., which cleared with I.V. glucose. Readmitted August 13, 1946. Free of pain.

No. 9. J. McK., Male, white, age 56. Admitted February 5, 1946. Diagnosis: Buerger's and gangrene. Chief complaint. (Buerger's disease)—Pain in legs since World War I. In 1941—Amputation of little toe, right foot. In 1941 right leg amputated, mid-thigh. Some numbness of toes at times and also bouts of pain. Developed sore on tip of 4th toe, left foot. Left foot cold. Dorsalis pedis and posterior tibial pulses not felt. Sore on 4th toe. Ether solution begun on March 1, 1946, using 46 bottles—Nicotinic acid 200 mgm. t.i.d. Discharged June 17, 1946, no pain, no gangrene. Hand and foot warm. Pulses present in foot. Only slightest of tingling in toes on prolonged walking. Nails growing.

No. 10. T. T., Male, white, age 26. Admitted June 25, 1946. Diagnosis: Buerger's, and varicose veins. Chief complaint: Pain in legs. Intermittent claudication since 1941. Lumbar sympathectomy, bilateral, 1943. Relief of symptoms. Recurred in 4-5 months. No pulses felt in left foot. Ether solution begun on July 6, 1946, using 16 bottles—Nicotinic acid. Discharged July 24, 1946, good results. Feet and legs warm. No claudication. Patient cheerful.

No. 11. A. G., Male, white, age 19. Admitted March 19, 1946. Chief complaint: Ulcers of ankles won't heal. Hhe had ligation of veins and other therapy without results. Diagnosis: Large ulcers both legs, region of ankles. Ether solution begun April 22, 1946, using 12 bottles. Ulcers practically healed. May 14, 1946, transferred to medical service because of pre and post. treatment. Electrocardiograms showed cardiac damage—right bundle branch block. Had nicotinic acid.

No. 12. E. R., Male, white, age 50. Admitted

September 19, 1945, with recurrent indolent ulcers. Has had various treatment including sympathetic block. Ether solution begun April 20, 1946, using 24 bottles and nicotinic acid with various forms of local therapy. Ulcers healed, patient deserted June 29, 1946.

No. 13. J. G., Male, white, age 36. Admitted July 8, 1946. Indolent ulcer failing to heal. Treatmen begun on July 14, 1946, using 14 bottles with nicotinic acid. Discharged July 31, 1946, ulcer completely healed. Extremities warm.

No. 14. G. G., Male, white, age 40. Admitted October 18, 1945, with recurrent indolent ulcer of left leg. Ether solution begun on April 20, 1946, using 24 bottles with nicotinic acid. Discharged August 12, 1946, ulcers completely healed. No pain in legs.

No. 15. J. L., Male, white, age 45. Admitted September 24, 1946. Recurrent indolent ulcers of legs. Ulcers since 1937. Various therapy. Ether solution begun October, 1946, using 21 bottles, ulcers healing. Had extravasation solution into tissue of arms. Patient left the hospital December 18, 1946. Seen in out-patient department regularly since discharge and there has been definite improvement.

No. 16. E. S., Male, white, age 48. Admitted February 1, 1946. Diagnosis: Neurodermatitis. Chief complaint: Burning and itching of left leg—6 months duration. Local therapy and several caudal anesthesias did not relieve or heal. Ether solution begun on April 26, 1946, using 24 bottles and nicotinic acid. Lesions decreased in size. Pain, itching and burning subsided. Finally discharged July 14, 1946, completely relieved of symptoms and fit for duty.

No. 17. J. F., Male, white, age 67. Admitted May 14, 1938, with alcoholic neuritis. Has been here since 1938 and developed pains in legs which responded to five bottles of intravenous ether solution.

No. 18. L. G., Male, white, age 67. Admitted June 17, 1946. Diabetic gangrene 2nd toe, left foot, severe. Marked redness and swelling of the dorsum of foot. Treated with insulin and diet. Gangrene spread. Started intravenous ether 2½ per cent June 22, 1946. Received total of 33 bottles by July 24, 1946. Second course started August 5, 1946, receiving 16 bottles. Gangrene of 2nd toe turned into dry gangrene with application of ether. Ulceration spread to plantar surface of foot; 2nd toe amputated and ulcer area of plantar surface healed. Discharged Feb. 5, 1947, ambulant. Had nicotinic acid.

No. 19. M. Z., White, male, age 56. Admitted Feb. 8, 1946. Diagnosis: Arteriosclerosis. Possible Buerger's. Pain in legs after walking. Intermittent claudication past seven months. Both feet cold. No pulses present. Ether solution begun on March 25, 1946 using 24 bottles with nicotinic acid. Discharged April 20, 1946—completely relieved of symptoms. Seen as out-patient in November 1946 and had no complaints.

No. 20. M. L., Colored, male, age 48. Admitted May 3, 1946. Onset present illness April 30, 1946. Gangrene of foot. Examination revealed severe moist gangrene involving all toes and part of right foot. Laboratory tests all negative. X-ray negative for sclerosis. Patient started on intravenous ether May 18, 1946, received 24 bottles. Relieved of pain and the gangrenous condition improved to some extent, but took turn for worse and amputation right leg Callender type done June 17, 1946. Patient well until September 10, 1946, at which time developed gangrene of left foot. Treated by refrigeration. Died October 11, 1946.

No. 21. B. W., White, male, age 54. Admitted to hospital June 14, 1946. Diagnosis: Bilateral bunion and severe hallux valgus, bilateral with marked over-riding great toe. On July 12, 1946, McBride type of operation for correction of above deformity was done. Gangrene developed in great toe, left foot. Laboratory examinations all run and found to be negative. Marked arteriosclerosis present. Started on intravenous ether July 20, 1946. Received 24 bottles without nicotinic acid. The gangrenous toe was turned into a dry gangrene and patient lost distal end of great toe but the gangrenous area of foot healed well. Discharged October 1, 1946, wound well healed.

No. 22. O. G., White, male, age 55. Admitted January 17, 1947. Diagnosis: Gangrene right great toe. Patient dropped a small piece of iron pipe on right foot January 14, 1947. The injury was of minor nature, however, great toe became black and also painful.

Examination on admission revealed advanced gangrene of entire great toe, right foot, with marked inflammation of dorsum of foot. Foot cold to touch. Absence of dorsalis pedis pulse. Intravenous ether started January 17, 1947, and has received 24 bottles to date. The inflammation has all subsided. The gangrenous area is now limited to the distal half of the great toe and is dry type of gangrene.

Patient has been relieved of his pain, the foot is warm out to the gangrenous area.

This patient will be given a few days rest. The laboratory tests will all be repeated. Kodachrome pictures will be repeated and if patient shows no change in laboratory tests a second course will be started.

Nicotinic acid has not been used in this case and it has been noted that there is a rise in the blood pressure during each infusion of the ether mixture. The second course of ether will be supplemented with nicotinic acid.

SUMMARY

1. Report is made of the use of intravenous ether in treatment of 22 patients with impending ischemic gangrene, dia-

betic ischemia, arternisclerosis, hypostatic ulcer, etc.

2. It is recognized that the series is small, but results have been encouraging.

3. Relief from pain has been one of the most gratifying findings.

4. The ether treatment has not been unpleasant to patient.

5. Ether is considered a safe drug to use in the dilution that we administer it.

6. We consider it a valuable agent. It can be given while patient is being prepared for surgery when this becomes necessary.

8. Cases should be carefully observed and evaluated prior to treatment.

REFERENCE

Robert A. Katz, M. D., Impending ischemic gangrene. New non-surgical therapeutic suggestions. New Orleans Surgical Journal, pp. 542-555, Vol. 98, No. 12, June 1946.

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FRACTURED RIBS FROM COUGHING

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Fractures of the ribs without direct external trauma have been reported rarely in literature. However, many writers think that the injury occurs more commonly than the records would lead one to believe. Wahl, who reported four cases, collected 63 cases from the available literature. Bahr collected 35 cases. The first case of spontaneous rib fracture was reported by Graves in 1834. Coughing and sneezing are the usual causes of this injury. Popisichill found 12 cases among 25,000 children suffering from whooping cough. Oechsli, Richardson, Tunis and others have reported fractures associated with pulmonary tuberculosis. Swingord & McKinnon reported one case in which eight fractures of ribs were identified by x-ray. Ribs on both the right and left side were fractured. Most fractures are about the same distance from the spinal column. An occasional anterior fracture is observed. Of the fractures reported about 76 per cent were on the left side, 20 per cent on the right side, and four per cent on both sides. According to Bahr, the liver weakens the trauma effect, hence the greater number found on the left side.

Congenital anomalies may account for some of the accidents. Osteo malacea, rickets, lues, tuberculosis and malignant diseases of the ribs (primary or metastatic), multiple myeloma, Ewings tumor, hyperparathyroidism, senile osteoparosis, Pagets disease and osteomyelitis are mentioned in literature as predisposing causes. Excessive muscular force, coughing, laughing, sneezing, parturition and excessive weight lifting have been reported as the exciting causes in various case reports. However, the most common exciting cause is coughing.

A sudden pain over one or more ribs following any of the above mentioned exciting causes, and which persists with localized points of tenderness over a rib or ribs, leads to a suspicion of fracture. Roentgenographs taken at proper angles will show the fractures if they exist.

The treatment is no different from the usual treatment of fractured ribs.

The following case is reported:

CASE HISTORY

Mr. S. L. F., age 67 years, came to the office complaining of severe pain on the left side anterior just under the ribs. The pain was unrelieved by diathermy or opiates. The cough which was persistent and due to an acute upper respiratory infection aggravated the pain. After several days of treatment, a cutaneous hemorrhagic spot the size of the palm of the hand was noted. The hemorrhage continued to spread until it involved the entire surface of the left half of the abdominal wall, and later spread to the outer surface of the thigh and across to the right side of the abdomen before it was arrested. There was no history of previous spontaneous bleeding. He did not smoke or drink. He was considerably overweight, a family tendency aggravated by over-eating.

There was edema of the lower extremities and the abdomen contained some fluid. The urine showed a trace of albumin, hyaline and granular casts. The blood picture was normal except that the platelets were 150,000 per cc. The bleeding and clotting time were normal. NPN was 62, icterus index 86. Several days later the NPN was reported 29. The first x-ray report was negative for fractures of the ribs. Later the x-ray taken at oblique angles showed two fractured ribs posterior and one anterior.

A specimen of the rib at the anterior fracture was removed under local anesthesia and submitted to Dr. W. R. Mathews, pathologist, for examination. He reported the following:

Specimen: Tissue from upper abdominal wall in vicinity of costal margin. *Date*: 12-31-45. *Gross*: The specimen consists of the tip of a rib (cartilagenous portion) with fragments of soft tissue showing a grayish yellow color. Section.

Microscopic: 1-2-46. The sections from the cartilagenous tip of the rib show no deep change so far as inflammatory reaction is concerned. However, in some of the sections there is small centrally located irregular cystic space that appears to have developed by dissolution of the cartilage. The perichondrium shows marked chronic productive inflammatory reaction with a number of areas of newly formed osteoid tissue in this zone. The reaction here is almost entirely productive in type (fibroblastic) though a few lymphocytes are present, usually focally. The blood vessels are not numerous and their walls are well formed. As one proceeds from the rib into the surrounding soft part, the structure is mainly that of low grade inflammation in fat. There has been pooling of fat spaces with intervening foci of foam cells (fat regeneration) in association with a varying amount of fibroblastic reaction and slight round cell infiltration. The margins of some of the pieces containing quite a number of capillaries looks like granulation tissue but only an occasional polymorphonuclear leucocyte is present. On the fringe of the section the fibroblastic and lymphocyte reaction is noted to be extending out into the adjacent striate muscle.

This is an inflammatory process involving the perichondrium and surrounding soft tissue but there are no specific features as to etiology so far as I can tell. The best diagnosis that I can make is perichondritis but I don't know what caused it. It could be a complication of some infectious disease. I fail to find an explanation for the expanding hemorrhage in the anterior abdominal wall. It is assumed that there was no trauma to this area.

The treatment consisted of bed rest, opiates, dry heat, vitamin K, salt free diet, Salyrgan and Theophyllin. The side was strapped with adhesive plaster, but as the skin would not tolerate it, the strapping was discontinued. The fractured ribs eventually healed, the edema subsided and the kidneys cleared. The blood picture returned to normal.

Though this condition is rare, it is well to emphasize the fact that persistent pain and tenderness localized over one or several ribs and accompanied by a resistant cough, should be investigated for possible fractures. It might be added that unless the x-ray is properly taken the fracture or fractures can be overlooked. This is well emphasized in the case report. The first x-ray taken was negative for fractures; the subsequent x-ray examination taken at proper angles revealed clearly the fractures.

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SULFONE TREATMENT OF LEPROSY

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Sulfone drugs were first used in the treatment of leprosy by Faget and co-workers[1] at the National Leprosarium, Carville, Louisiana in 1941. Sulfa or sulfonamide derivatives (sulfanilamide, sulfathiazole, sulfapyridine, and sulfadiazine) had previously been demonstrated as ineffective drugs in leprosy except for varying degrees of usefulness in clearing up secondary infections of skin and mucous membranes.[2]

Promin (sodium salt of p.p. diaminodiphenyl sulfone n.n. didextrose sulfonate) was the first drug of the sulfone series to be used in leprosy. Its reported value in experimental tuberculosis in guinea pigs[3] and its seemingly promising clinical trial at that time in human tuberculosis[4] led the Carville workers to try this drug and continue its use in leprosy. Results at first were not very promising. Following the methods by which the clinical trial of pro-

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min was being carried out in human tuberculosis, the drug was administered orally. Toxic symptoms following oral administration were severe. Dosages had to be kept so low that therapeutic effects seemed unlikely. Oral treatment with promin was abandoned in favor of a promin-like drug called Internal Antiseptic No. 307 which was well tolerated orally.

Internal Antiseptic No. 307 (sodium 4-4' diaminodiphenyl sulfone-2-acetyl sulfonamide) was administered to one group of patients while a placebo was given to another group of patients.[1] After 8 months of treatment the group that received I. A. No. 307 was in a much better condition as far as this group of patients' specific leprous lesions and complications were concerned. This indicated that the improvements in leprosy under this promin-like drug could not be attributed to spontaneous regression of lesions but to some added factor, in this case I. A. No. 307. Meanwhile, a preparation of promin suitable for intravenous use had been perfected. Toxic manifestations following intravenous administration were surprisingly mild; so mild that several times the original dosage was perfectly well tolerated by most patients. Improvement in specific leprous lesions and leprous complications was considerably accelerated over that obtained with I. A. No. 307. I. A. No. 307, consequently, fell by the wayside before it really had had an adequate clinical trial.

When it becomes necessary to administer a drug daily intravenously to a large group of patients a number of administrative and technical problems arise. A search, therefore, was made for a drug with a therapeutic action comparable to promin but which could be administered orally with minimal toxic effects. Such drugs were found in diasone (disodium formaldehyde sulfoxylate diamino diphenyl sulfone) and promizole (4,2′ — diaminophenyl — 5′ — thiazole sulfone). These drugs, like promin, were also being evaluated in the treatment of human tuberculosis.[5, 6] Therapeutic results as well as toxic effects from these two drugs were found to be comparable to that of promin with the added advantage that they were tolerated well orally while promin was not.

The investigations conducted by the Carville group[7, 8, 9] with the sulfone drugs in leprosy have been confirmed subsequently by a number of leprologists of other countries. Muir's[10] experience with diasone in the British West Indies "so far corresponds closely with those reported on the use of promin at Carville". Fernandez and Carboni of Argentina[11] state: "Diasone has proved to be effective in the treatment of leprosy in a series of 42 patients observed for 8 months." Braza, Diniz, Lima and Schuyman of Brazil;[12] Mom of Costa Rica;[12] Wharton of British Guiana;[12] Castello of Cuba[13] and Sloan of Hawaii[14] have all reported favorably. At the Second Pan American Leprosy Conference held in Rio de Janiero, Brazil, in October 1946, the Subcommittee on Therapeutics recognized the sulfone drugs as having an efficient therapeutic action in lepromatous leprosy although the committee felt it was too early as yet to approve them as definite chemotherapeutic agents for the disease.[15]

CHEMICAL STRUCTURE

Promin, diasone, and promizole are related chemically to one another by having in common the diamino diphenyl sulfone radical. There is reason to believe that the diamino diphenyl sulfone radical is the active principle. This belief, however, has not been definitely established. Sulfone derivatives while similar in chemical composition to sulfa or sulfonamide drugs should not be confused with the latter. The parent radical in the former drugs is a double benzene ring structure as distinguished from the single benzene ring structure present in the parent radical of the sulfa or sulfonamide series of drugs. This difference in chemical structure might well account for the difference in toxicity exhibited between these two classes of drugs as well as therapeutic activity.

TOXIC MANIFESTATIONS

Sulfone drugs are comparatively free from any severe toxic effects. Promizole is the least toxic of them all. The most fre-

quent toxic effect encountered is a slow destruction of erythrocytes. Infrequently, leucopenia and allergic dermatitis occur. Nausea, vomiting, lack of appetite or headaches are seldom encountered and never severe. These latter symptoms are most frequently seen in the orally administered drugs, although nausea and vomiting and sometimes sneezing may be seen immediately after intravenous injection of promin. Hematuria or crystaluria has not been seen in our group of patients except early in the experience with diasone. When treatment was first initiated patients were given maximum dosages from the start. Hematuria without crystaluria occurred in some patients. When treatment was begun with small doses of the drug and gradually increased over a period of weeks as tolerance was increased, no further difficulty occurred.

To guard against any toxicity which might occur certain precautions are practiced in the treatment regime that has been established. Dosage is kept low at the beginning of treatment and gradually increased as individual tolerance is gained. Thus, the dosage of promin ranges from 1.0 gram to 5.0 grams daily, that of diasone from .3 gram to 1.0 grams daily, and that of promizole from 1.0 gram to 8.0 grams daily. Rest periods are also provided every third week for patients treated with promin and for a period of 2 weeks every 2 months for patients taking diasone and promizole. During the rest periods the patients' hematopoietic system is usually afforded time to restore the blood cells lost through the hemolytic action of the drug. Occasionally, it is necessary to administer iron and liver extract as adjuvants for anemia. Urinalysis, red and white blood counts, and hemoglobin estimations on each patient every three weeks, and frequent clinical examinations are performed in order to detect manifestations of toxicity early.

INTENSIVE PROMIN THERAPY

Sulfone drugs are rapidly eliminated in the urine. Only traces of the drugs remain in the blood stream 24 hours after administration. Six to eight hours after the intravenous injection of a 5.0 gram dose of promin only a relatively small amount remains in the blood stream. Recently, therefore, a small group of patients have received a 5.0 gram dose of promin intravenously three times daily in order to determine whether or not the therapeutic response will be more rapid when the promin blood level is held high. Results to date would indicate that there is an accelerated response but it is still not determined whether or not the therapeutic response is sufficiently accelerated to justify the added risk and added administrative procedure involved.

THERAPEUTIC EFFECTS

While only objective improvement as demonstrated by frequent clinical examinations, photographs, and laboratory evidence have been considered in evaluating the therapeutic effects of the sulfones, the marked subjective improvement after treatment with these drugs cannot be overlooked. Both types of improvement are slow in coming. Definite objective improvement, as a rule, seldom becomes manifested before 6 months of treatment. After this, improvement is progressive with few if any relapses.

Mucous membrane lesions usually are the first to respond to treatment. Oral and laryngeal nodules, ulcers, and infiltrations usually subside and disappear after a few months treatment. The patient's voice is restored and dyspnea is relieved. Emergency tracheotomies become unnecessary. Nasal obstruction and epistaxis are relieved through the healing of inflammatory mucosal lesions.

Improvement in skin lesions follows. Nodular lesions slowly shrink and flatten. If the lesions originally were large and deepseated they disintegrate more slowly and heal with subsequent scar formation. If small they are completely absorbed leaving only a pigmented spot. Infiltrative plaques gradually subside with diminution of inflammatory swelling and edema of dermal tissues. At times, the infiltrated part of the skin assumes a greyish to purplish hue as it undergoes healing.

Leprous ulcers of the extremities gradually become disinfected and form healthy granulations and heal through scar formation. Trophic plantar ulcers, unless the trophic disturbance is exceedingly severe, granulate and gradually close with residual callosities. Occasionally, regrowth of hair occurs in eyebrows, beard and arms and legs.

Leprous eye lesions seem capable of offering a considerable degree of resistance to sulfone therapy. Although, in general, the progress of conjunctival, corneal and iridocyclitic leprous infiltrations is checked and there is occasional improvement in impaired vision, stubborn attacks of repeated severe acute iridocyclitis in some patients do occur while treatment is in progress. This is especially true when the eye conditions are of long standing. It would appear form our experience in this field that here early treatment is of utmost importance.

Another example of the slow action of the sulfones is seen in the resistance offered by M. leprae as demonstrated by skin and nasal smears. During the first year of treatment practically all lepromatous cases remain bacilliferous. During subsequent years of treatment, an ever increasing proportion of patients revert from positive to negative. It is possible, therefore, to secure an arrest of the disease,[16] and the return of the patient to his home. Early cases appear to respond faster in this regard than cases of long standing. So far, no relapses of arrested cases have been reported.

Many patients while improved remarkably from the clinical standpoint continue to be positive bacterioscopically after several years of sulfone therapy. This slow disappearance of the organisms from the lesions would indicate that sulfones have little if any destructive effect upon the acid-fast organism in the tisue cells. Fite[17] in his study of the histopathology of lesions before and after promin treatment found that promin appears capable of eliminating bacillary infection from the blood stream and small blood vessels thereby preventing the formation of new lesions. The lesions already present are then afforded a better opportunity to recede much as they would recede during spontaeous regression.

Attacks of acute lepra reactions with erythema nodosum or erysipeloid dermatitis are not commonly aborted by sulfone therapy. Patients experiencing such episodes previously may have recurrence during the course of treatment. However, severe lepra reactions are not nearly as frequent as formerly but there is some evidence to indicate that the mild, more or less evanescent, attacks of erythema nodosum might be, at times, precipitated by the sulfone drugs. Episodes of acute leprous neuritis are also not prevented or aborted. Severe attacks of neuritis occur quite frequently. Following such acute nerve reactions, loss of sensation, muscle atrophy, paralysis and contractures occur occasionally, in spite of treatment. On the other hand, many patients not suffering from acute nerve reactions have partial return of sensation over anesthetic areas as treatment progresses. This is probably due to a mechanical release of pressure resulting from reduction of the pathological changes along the nerve trunk rather than to a regrowth of axis fibers.

Subjective improvement as previously stated occurs concurrently with objective improvement. In addtion to the relief of nasal obstruction, hoarseness, and dyspnea, patients develop a sense of well being. They have more pep, sleep better and, in general, feel as if they have a new lease on life. Weight gain is universal; in fact, some patients must be cautioned against gaining too much weight.

DISCUSSION

Although definitely not a cure all, the sulfone drugs have proved therapeutically more effective in lepromatous leprosy than any previous treatment tried at Carville. No claim, however, is made that these drugs are specific remedies for leprosy. The superiority of the sulfones over chaulmoogra oil is significantly demonstrated at Carville by the complete abandonment of the latter treatment for the routine treatment of leprosy in favor of the sulfones.

Final conclusions as to the efficacy of the sulfones, however, cannot as yet be given. It is possible that leprosy cases treated with the sulfones might reactivate as cases treated with chaulmoogra oil have. So far no relapses have occurred, but it is yet too early to say that none will.

The mode of action remains unknown. The drugs appear to prevent the formation of new lesions. In doing so they allow the body defenses to deal more effectively with the old lesions which seem to disappear by simple atrophy.

Residual deformities of hands, feet, face, and eyes as seen in far-advanced cases of the disease, naturally, are not reversible. Consequently, it is evident that early treatment in leprosy is as necessary as in cancer, tuberculosis or syphilis in order to secure the best results—and possibly prevent such deformities from occurring. Early treatment requires early diagnosis. Since an effective remedy is in their hands, all physicians, especially those in the states where leprosy is endemic, should increase their index of suspicion for this age old disease as they have for cancer, tuberculosis, and syphilis so that cases of leprosy also might be found and placed under treatment early.

CONCLUSIONS

(1) The sulfone drugs, promin, diasone, and promizole have been found to be effective remedies for leprosy.

(2) Although no claim is made that they are specific remedies, objective and subjective clinical improvements are produced by these drugs that cannot be attributed to spontaneous regression of the disease.

(3) Improvements are slow in their development but are progressive during the course of treatment. The disease, seldom if ever, appears to get worse while under treatment.

(4) Laboratory examinations indicate a slow but steady decrease in acid-fast organisms in the skin. Negative skin smears and arrest of the disease occur. So far no relapses of arrested cases have been reported.

(5) Early treatment of leprosy cases through early diagnosis is a goal to be achieved.

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CORRECTION

In the first line of paragraph five of Summary and Conclusion on page 427 of the paper entitled "A Review of Certain Aspects of the Pathologic Physiology of Heart Disease" by Roderick C. Webb, M. D., the third word should be "left-sided" instead of "rightsided."

NEW ORLEANS
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HORMONE THERAPY IN MAMMARY CANCER

The effect of various hormones on carcinoma of certain organs is a subject continually before physicians in many fields. The palliative treatment of inoperable carcinoma of the breast with metastases, by the use of estrogens and androgens is a matter of present interest. It is agreed by observers that the only prospects of cure come from surgery and/or radiation in the manner currently used. The helpfulness of hormone therapy is limited in its possible palliative effect in metastatic carcinoma. A summary of observations to date is made by the Council on Pharmacy and Chemistry of the A.M.A.[1] It is felt that vigorous androgen or estrogen therapy should be undertaken with caution and with a knowledge of its limitations.

The possible usefulness of the androgens seems to be in the field of bone metastasis. Testosterone propionate, by needle, 100 mg. three times a week for ten weeks is suggested. This is followed by 60 mg. methyl testosterone a day by mouth for ten weeks. The benefits are similar to those seen in prostatic carcinoma after castration. Scant relief is to be expected in metastatic lesions in the soft tissues.

Estrogen therapy has been followed by regression in the primary tumors and soft tissue recurrences. It appears that it had best be used in patients about 60 years of age and over. Care must be used in elderly patients with cardiac disease as decompensation may be precipitated as a result of retention of fluid.

The following additional warnings are given:

"Because of the inherent dangers of indiscriminate steroid therapy of mammary cancer, the experimental nature of this therapy must be emphasized. The Subcommittee believes it imperative to reemphasize the known dangers and to point out that others may be discovered in the investigations now contemplated. The known dangers are reiterated:

"*Androgen Therapy.*—In cases of metastic bone lesions with high blood calcium levels (such, for example, as 14 mg. per hundred cubic centimeters or above) certain patients have been made extremely ill, having nausea, vomiting and prostration, by the instigation of testosterone therapy. It is necessary to determine the blood calcium level on each patient before commencing testosterone therapy and, if the calcium level is high, during the course of treatment.

"*Estrogen Therapy.*—Any patient who still menstruates or who has menstruated

within a five year period should definitely not receive estrogen therapy, as it accelerates the rate of growth of the carcinoma.

"Large therapeutic doses of estrogen eventually produce uterine bleeding; it then becomes necessary, temporarily at least, to diminish the dosage.

"*Androgen and Estrogen Therapy.*—Androgen and estrogen therapy should never take the place of radical surgery in operable mammary carcinoma."

1. JAMA 135:987 (Dec. 13) 1947.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

REPORT OF THE PRESIDENT OF THE LOUISIANA STATE MEDICAL SOCIETY

The year 1947 was indeed one of soul trying trials and tribulations for the officers of the Louisiana State Medical Society who were beset and bedeviled from many sides; nevertheless the year can, on the whole, be regarded as very successful and rich in accomplishments.

Meetings were attended in each district of the state. The scientific programs were, in general, well prepared and in some instances outstanding in merit. Attendance figures were surprisingly good on a few occasions but disappointing in about as many. The affairs of the State Society provoked lively interest in a few members in every district but such interest was more than offset by ignorance, apathy or indifference on the part of a far greater number. An officer of the Society must, of necessity, be disturbed by the number of members who are not only completely ignorant of what the Society is doing but seemingly are additionally complacently indifferent. While we were frequently asked "What do you do with the money?" or "What do we get for our dues?" there was no real discontent or bitter criticism and we are happy to report we encountered no internal strife or serious discord.

It is with extreme distress that I report death in our official family during the year. We lost Dr. John T. O'Ferrall, who was Councilor of the Second Congressional District and who for years had been interested and active in organized medicine. His place will be difficult to fill in our ranks, both professionally and personally.

After some twenty years of faithful service, we also lost during the past year Dr. John Herr Musser, Editor of our Journal. The membership of the State Society is joined by a host of other individuals and organizations in mourning his passing. We deemed ourselves fortunate indeed in being able to obtain the services of Dr. Philip H. Jones for the post of Editor. Dr. Jones needs no introduction to this Society but I bespeak for him your hearty support and cooperation.

Dr. Joseph A. O'Hara, a Past President of the Society, also died during the past year and his passing was a serious loss to his community and to organized medicine.

INSURANCE

During the past year the United States Fidelity and Guaranty Insurance Company, with whom we had carried a master policy with individual membership against malpractice suits, canceled their contract. We were fortunate and happy to make immediate arrangements for writing a new contract with the Aetna Casualty and Surety Company which has carried protection for the Orleans Parish Medical Society for a number of years as well as for many other similar groups throughout the Country.

SOCIALIZED MEDICINE

Although the bills for government socialization of medicine were not reported out of the committees a very active fight was carried on throughout the entire year and a serious warning must be sounded against any relaxation of vigor or any sense of security or complacency in this fight which is being waged relentlessly and constantly by those whom we consider enemies of organized medicine. We need to recall only the President's message to realize the ever-present danger. The Louisiana State Medical Society has participated actively in combatting these bills and in comparison with many other states we believe we can say with justice we have actually done more than our share. There is no doubt that this fight is going to be a long drawn out one and attention might be called to the recent events in England in this connection and the experience of the doctors of San Francisco with a large municipal service organization. We are not only threatened by governmental medicine in many different guises but also by the gradual assumption of the practice of medicine or at least the management thereof, by various lay groups as they become larger and more powerful. This tendency has been very evident on many sides and an example may be cited in the recent organization of a society for the purpose of combatting a national organization in the management of blood collection, transfusion and so forth.

SOUTHERN REGIONAL CONFERENCE

The Southern Regional Conference of the American Medical Association, representing seven states, was held in New Orleans in October. The Society cooperated in this meeting and received very cordial letters of thanks and appreciation from the officers of the AMA, who considered it the most successful meeting of this type.

COUNCIL ON MEDICAL SERVICE AND PUBLIC RELATIONS

The Council on Medical Service and Public Relations has not only been very active during the past year but has planned an ambitious and far-reaching program for the coming year. They are fighting vigorously socialization and regimentation of medicine and deserve our unqualified support. Funds are needed for this fight and I urge that they be granted. I believe the annual dues collected from the members of the Louisiana State Medical Society should be spent for the benefit of the men who pay the dues and not saved and invested in government bonds. I believe that, except for a reasonable sum set aside for unforeseen emergencies, the monies should be spent as collected for the good of the Society, for I can see no reason for accumulating large savings. I recommend that the House of Delegates approve, in principle, such a plan for the guidance of the Budget and Finance Committee.

COMMITTEE ON RURAL MEDICAL SERVICE

The Committee on Rural Medical Service has likewise been very active and has done splendid work during the past year and they need our continued support and encouragement. The general purposes, work, and fields of endeavor of this Committee and the Council on Medical Service and Public Relations, are so closely inter-related that it is suggested that a plan be formulated by which they may be combined into one committee or at least a much closer affiliation and integration arranged. It is also deemed advisable, in this connection, that serious consideration be given the employment of a competent secretary for work in these fields as such a man could be used very well to the advantage of organized medicine in general and possibly might also function as an assistant in the office of the Secretary-Treasurer, Dr. Talbot.

LOUISIANA PHYSICIANS SERVICE, INC.

The Louisiana Physicians Service, Inc. has encountered the troubles and disappointments which we have learned are experienced by every such plan in its first year or two. At one time the whole structure seemed precarious but certain adjustments were effected which eased the acute strain. The Executive Committee of the State Society requested a committee of six nationally prominent and recognized authorities in the fields of prepaid medical care and hospital insurance to come to Louisiana and make a study of the manage-

ment and closer cooperation and coordination between LPS and the Blue Cross organizations. The Blue Cross organizations readily agreed to cooperate in the survey. The report of this committee was very helpful and practically all of their recommendations have been acted upon. These gentlemen very graciously gave of their time and service at no cost whatsoever to the State Society. Our experience has shown us clearly that we need the advice and counsel of practical business men in the management of LPS and the above mentioned committee included such a recommendation. In order that lay members may be chosen in an orderly and managed fashion, a panel of some twelve names should be set up each year by the State Society from which list of names the LPS must select its lay directors; this should follow practically the same plan by which the medical members of the Board of Directors of LPS are chosen. The Board of Directors should be increased to 15, of whom no more than four may be lay members.

SECRETARY-TREASURER

The House of Delegates, the Executive Committee, and the Society in general, are all well aware of the capability, devotion and sincerity of our Secretary-Treasurer, Dr. P. T. Talbot. The daily load of work in his office is constantly increasing and becoming more burdensome. Dr. Talbot's salary was fixed many years ago and has never been increased. In the meantime prices of all necessities have spiraled to unbelievable heights and what was once an adequate salary may now be decidedly otherwise. It is my opinion that Dr. Talbot has earned, deserves, and should have an increase in salary, quite regardless of the present economic pressure which makes such an increase an urgent necessity.

Because of the rapidly increasing burden of work in this office it is recommended that serious consideration be given employment of a younger man to act as an assistant to Dr. Talbot and who might, of course at the samt time, be familiarizing himself with the work and detail of the office against such time as Dr. Talbot may desire to retire. It is my opinion that a Doctor of Medicine should be chosen for this position because our experience indicates that the profession will be understood in a more sympathetic and comprehensive manner by one who is himself a doctor and can therefore appreciate from the standpoint of a physician rather than that of a business manager or executive such problems as may arise from time to time. It might, of course, be possible for the office of the Secretary, the Council on Medical Service and Public Relations, and the Committee on Rural Medical Service, to prorate among themselves this person's time so that he could function in such a dual capacity.

CONCLUSIONS

I desire to express my sincere and heartfelt thanks to the Society at various levels; first to the Society as a whole for conferring upon me the outstanding honor of selecting me as President; to the committees, from the Executive Committee, right down the line—not only has no committee ever shown any reluctance to cooperate to the fullest or carry out any request or suggestion but they have on the whole been alert and active and some of them, particularly the Council on Medical Service and Public Relations, Rural Medical Service Committee and Committee on Congressional Matters, have done outstanding work. I want to thank the officers of the component societies for their excellent meetings and invitations to same and finally those individual members whose names are legion upon whom I called for help, encouragement and assistance during the year. Whatsoever I asked was always promptly forthcoming and I can wish my successor nothing better than I had along these lines. Through the year Paul Talbot has stood "like a great rock in a weary land." This gentle, kindly man is both a tower of strength and a well of wisdom and understanding and without his constant presence at my side as guide, philosopher and friend the burden of the presidency would have

indeed been heavy. I thank him sincerely. Recognition and thanks must be given Miss Annie Mae Shoemaker for her efficient management and cheerful manner and also to other personnel in the office who have been of assistance.

GILBERT C. ANDERSON, M. D.,
President.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

NEW BOOKLET DESCRIBES SERVICES OF STATE SOCIETY

"Services of Your State Medical Society" is the title of the new booklet prepared by the Council on Medical Service and Public Relations of the Louisiana State Medical Society and recently mailed to every member of the State Society.

The booklet tells of the services offered by your State Medical Society; tells briefly of the basic organization of the Society and also explains what the Louisiana State Medical Society is, giving a brief history and construction of the operations of the organization.

The services are divided into three parts and explanation is given concerning the principal activities of the Society, the services furnished on a personal basis, and also tells what doctors can do to help their State Society.

Included in the booklet is a drawing showing the physical structure of the Society from the physician down to the functioning committees.

It is suggested that each doctor take time out to review this booklet and apprise himself of the activities of organized medicine and what it is doing today in his behalf.

THIRD DISTRICT MEDICAL SOCIETY

At a meeting of the Third District Medical Society held at the Lafayette Charity Hospital, Lafayette, on January 22, the following officers were elected: Dr. L. M. Villien, Jeanerette, President; Dr. S. D. Yongue, Breaux Bridge, Vice-President; Dr. I. W. Gajan, Jr., New Iberia, Secretary-Treasurer. Dr. F. H. Davis, Lafayette, was elected delegate to the State Society Meeting and Dr. H. M. Flory, New Iberia, was elected alternate. An excellent scientific program consisting of a paper by Dr. Sidney Chipman on "Infantile Croup" and a paper on "Use and Abuse of Forceps" by Dr. Curtis Lund, were presented. This organization has recently been reactivated following a wartime furlough and the new officers are anxious to have a representative organization. All doctors of the district are therefore asked to pay their dues for 1948 to the secretary-treasurer now.

A unique type of postgraduate education is being offered through the Third District Medical Society. The course, given by seven prominent physicians and dentists from the University of Illinois started on Wednesday, March 31 and will be given for a period of six consecutive weeks from 7:30 to 9:30 p. m. on Wednesday evenings. The course is expected to be of value not only to the physician in general practice but also to the oral and maxillofacial surgeon and the otolaryngologist. The American Cancer Society is covering the cost of this course. The unusual feature about the program is that it can be heard without going to Chicago. It is presented in New Iberia in the Frederic Hotel Gold Room through the facilities of amplified long distance telephone communication and is illustrated by slides and movies sent there for the purpose. This is only the second time this method has been used in the world for the purpose of bringing scientific meetings to the doctor instead of the doctor going to the meetings. The first trial, in Scranton, Pennsylvania, was very successful. This series of lectures will present the subject of "Oral Cancer" in all of its aspects. Due to the present aroused public interest in cancer physicians are urged to attend as many sessions as possible.

IBERIA PARISH MEDICAL SOCIETY

A dinner meeting of the Iberia Parish Medical Society was held on February 5 at which time the following officers were elected: Dr. I. W. Gajan,

Jr., New Iberia, President; Dr. D. E. Bourgeois, New Iberia, Vice-President; Dr. Leon Slipakoff, New Iberia, Secretary-Treasurer. It is planned to hold quarterly scientific meetings of this organization.

EAST AND WEST FELICIANA BI-PARISH MEDICAL SOCIETY

The East and West Feliciana Bi-Parish Medical Society was entertained by Dr. Glenn J. Smith and the staff of the East Louisiana State Hospital in Jackson on March 3. After an excellent dinner a scientific program at which Dr. J. W. Dowell, of Baton Rouge and Dr. Wirth Wilkinson, of Jackson, presented excellent papers, was held. Vote of thanks was extended Dr. Smith and the staff of the hospital for their excellent entertainment and to Drs. Dowell and Wilkinson for their participation in the program. Drs. Dowell and Hamilton were elected members of the organization. The next meeting will be held on the first Wednesday in June.

NEWS ITEM

Dr. Rene J. Dubos, Professor of Comparative Pathology and of Tropical Medicine at the Harvard Medical School presented results of his researches on tuberculosis together with plans for future operations, in connection with the Sigma XI National Lectureships, on April 8 at 8 p. m. in the auditorium of Hutchinson Memorial Building.

PUBLIC RELATIONS PROGRAM EXPLAINED TO THREE PARISH MEDICAL SOCIETIES

The Public Relations Program of the Council on Medical Service and Public Relations of the Louisiana State Medical Society has been presented to three parish medical societies within the last month.

The Public Relations Program was presented to the Avoyelles Parish Medical Society at a meeting held in Marksville on Friday, February 27, at the Avoyelles Country Club. Dr. A. V. Friedrichs, Chairman of the Council on Medical Service and Public Relations, explained the public relations program in detail. Mr. Frank Lais, Jr., executive Director of the Council, briefly described some of the details of the program.

Dr. O. B. Owens, a member of the Council and President of Louisiana Physicians Service, explained the operations of Louisiana Physicians Service, the BLUE SHIELD plan which is the surgical and obstetrical care plan sponsored by the State Medical Society.

Dr. D. B. Barber, President of Louisiana Hospital Service, a Blue Cross plan, explained the benefits of Blue Cross Hospital Service.

Dr. P. T. Talbot, Secretary-Treasurer of the Louisiana State Medical Society, explained the functions of the State Medical Society.

The second presentation of the Public Relations Program to a parish medical society was made by Frank Lais, Jr., Executive Director of the Council, to the East Baton Rouge Parish Medical Society on Tuesday, March 9. Mr. Lais explained to the members of the East Baton Rouge Parish Medical Society the complete Public Relations Program as presented by the Council on Medical Service and Public Relations and emphasized the necessity for active participation in the program by every doctor in the state.

The third presentation of the general Public Relations Program was made to members of the Lafourche Parish Medical Society and its Woman's Auxiliary at a joint meeting held in the home of Dr. Guy R. Jones in Lockport on Monday, March 15. Dr. Jones is Chairman of the Committee on Rural Medical Service and many of the objectives of the Public Relations Program include a joint presentation of the activities of the Council on Medical Service and Public Relations and the Committee on Rural Medical Service.

Mr. Lais presented the Public Relations Program and Mrs. T. R. Tomlinson, Chairman of the Louisina Rural Health Council, explained the activities of the State Health Council in organizing parish health councils. The parish health councils are being organized under the leadership of the Council on Medical Service and Public Relations of the Louisiana State Medical Society and the Louisiana Farm Bureau Federation, together with other voluntary agencies interested in health.

COUNCIL ANNOUNCES SEVEN ACTIVE RADIO PROGRAMS

Seven active radio broadcasts are being presented throughout Louisiana and three additional broadcasts have been tentatively arranged for the presentation of the AMA transcribed health series which are loaned to the State Medical Society for reproduction. Active programs are being presented over the following radio stations on the day and time designated:

KNOE—Monroe — "BEFORE THE DOCTOR COMES"—Every Wednesday, 1:30 p. m.

KTBS—Shreveport—"THE STORY OF SURGERY"—Every Saturday, 4:00 p. m.

KWCJ — Natchitoches — "KEEPING YOUR BABY WELL"—Every Monday, 3:30 p. m.

KRUS — Ruston — "KEEPING YOUR BABY WELL"—Every Thursday, 2:45 p. m.

WJBO—Baton Rouge—"THAT WONDERFUL FEELING"—Every Tuesday, 10:45 a. m.

WIKC—Bogalusa—"DODGING CONTAGIOUS DISEASES"—Every Sunday, 12:45 p. m.

KCIL—Houma—"MORE LIFE FOR YOU"—Every Saturday, 9:15 a. m.

These broadcasts are presented by the Council on Medical Service and Public Relations of the Louisiana State Medical Society in cooperation with the individual parish medical society in the area where the radio station is located.

The series being presented are educational in scope and it is the desire of the Council on Medical Service and Public Relations that each doctor inform his patients of these broadcasts and encourage the patients and their families to listen to them. It is only through cooperation of the doctors and their efforts in calling these programs to the attention of their patients that they can successfully be reproduced.

AMERICAN MEDICAL ASSOCIATION SAYS PUBLIC DEMAND FOR SERVICE AT NIGHT MUST BE MET

The American Medical Association calls on county medical societies to meet the public demand for emergency medical service at night.

"From many sections of the United States," says an editorial in a recent (March 6) issue of The Journal of The American Medical Association, "complaints have come lately that persons who have called physicians late at night have been unable to secure attendance from either those whom they considered their family physicians or from specialists or, indeed, from any physician."

The American Medical Association says that large county medical societies or urban groups should maintain a physicians' telephone exchange which would take the responsibility for locating physicians if response is not made to the ringing of the telephone in the home or in the office.

The solution is simple and practical, requiring only a minimum of community organization. A number of county medical societies already maintain a physicians' telephone exchange where doctors' calls may be received and doctors located if their office or home telephones do not respond. Such an exchange can be utilized at night or on holidays, simply by furnishing the exchange with a list of physicians who are able and willing to make night calls. Such physicians would probably include the younger general practitioners, newcomers to the community, and others in general practice. If such a roster were available, and its availability widely publicized, night calls for medical service would soon gravitate to this center and the patient would be assured the services of a physician.

Under such a system the necessity for calling many doctors would be eliminated. Two calls at most would be necessary. Where there is no physicians' telephone service, it might be possible to have the hospitals cooperate by handling such night calls.

The Medical Society of the District of Columbia and the Milwaukee County Medical Society have found such a plan practical, as have a number of other societies.

By this simple and practical expedient, which is doubtless in effect in modified form in a number of communities, the sick can be served and the medical profession can redeem its pledge of unselfish public service.

It is highly important that where such arrangements exist they be brought to the attention of the lay people in the community through appropriate public channels, not once but repeatedly, to keep the shifting populations well informed.

Few problems in the field of medical service have aroused so much public discussion. Whether resentment against physicians is justified or not, it does harm. The solution for this problem is so eminently simple and would reflect so favorably upon physician-patient relationships that medical societies everywhere are urged to give it serious consideration immediately.

EXAMINATIONS FOR APPOINTMENT OF MEDICAL SCHOOL GRADUATES IN NAVY MEDICAL CORPS

Examinations for the selection of candidates for appointment to the grade of Lieutenant (Junior Grade) in the Medical Corps of the Navy will be held at Naval hospitals in continental United States during the period May 3-7.

Graduates of approved medical schools in the United States or Canada who have completed intern training in accredited hospitals or who will complete such training within four months of the date of the examination, and who are physically and otherwise qualified, are eligible to take the examination.

Candidates, who must be less than 32 years of age at the time of appointment, will be required to appear before boards of medical examiners and supervisory Naval examining boards at the Naval Hospital nearest their place of residence to demonstrate their physical and professional qualifications for appointment.

Following approval by the President of the United States, selected candidates will receive their appointment and orders assigning them to duty in a Naval medical facility for active Naval service.

Public law 365 of the Eightieth Congress, approved August 5, 1947, provides additional compensation at the rate of $100.00 a month for each month of active service performed by Medical Corps officers of the Navy. This is in addition to any pay, allowances or emoluments that Medical Corps officers are otherwise entitled to receive, and by the provisions of the law, the amount paid to any one officer under this authority is limited to a total of $36,000 computed on the basis of $1,200 yearly over a period of 30 years active service.

Detailed information concerning the form and procedure of application may be obtained from Naval Officer Procurement Offices or from the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

SCHOLARS IN MEDICAL SCIENCE SELECTED BY MARKLE FOUNDATION

Sixteen young scientists have been appointed as the first group of Scholars in Medical Science, under the plan announced last fall by the John and Mary R. Markle Foundation to support qualified young scientists who wish to make a career in academic medicine. The Scholars were selected from candidates nominated by accredited medical schools in the United States and Canada by regional committees appointed by the Foundation. Toward the support of the Scholars and their research the Foundation has allocated a total of $400,000 to their respective medical schools, each school to receive $25,000 payable at the rate of $5,000 annually for five years.

As faculty members of the participating medical schools, the Scholars will devote the next five years to teaching and research, at the end of which time they will have had an opportunity to become established teachers and investigators. According to John M. Russell, Executive Director of the Foundation, an undetermined number of Scholars will be appointed each year for the next few years for the long-range purpose of strengthening the faculties of medical schools, and medical education generally.

BLUE SHIELD ADOPTED NATIONALLY

BLUE SHIELD has been adopted as the official name and insignia for the non-profit, prepayment medical care plans in the United States, as the result of action taken recently by the Commission of Associated Medical Care Plans.

Prior to the establishment of AMCP in 1946, several medically sponsored prepayment plans had begun to use a BLUE SHIELD symbol on their literature, one of which was Louisiana Physicians Service, the practice having originated in 1939 with Western New York Medical Plan in Buffalo, New York.

Having secured permission from eighteen plans already utilizing the insignia, the AMCP Commission adopted BLUE SHIELD as the official service mark for its forty-eight member plans.

It is anticipated that BLUE SHIELD will gain widespread public acceptance, identifying the prepayment programs sponsored by the medical profession.

The BLUE SHIELD plan serving the State of Louisiana is known as Louisiana Physicians Service and is sponsored by the Louisiana State Medical Society, with its home office in New Orleans. The plan cooperates with Blue Cross in Baton Rouge, Alexandria, Shreveport, and Monroe.

The adoption of BLUE SHIELD will not replace the Seal of Acceptance of the AMA, awarded by the Council on Medical Service to prepayment plans which have complied with established minimum standards.

The easiest way to distinguish the Blue Shield symbol from that of the AMA is to remember that the Seal of Acceptance, granted by the AMA Council on Medical Service, indicates AMA approval. BLUE SHIELD is a promotional device, adopted by AMCP and its member plans, all of whom follow the non-profit principle of operation.

Whether referred to over the radio, in advertising copy, or news releases, BLUE SHIELD provides an easily recognizable verbal and visual means of identifying the nation's non-profit plans for prepaying the costs of medical care.

On January 1, 1948 the non-profit plans recorded a total enrollment in excess of 7,000,000 persons.

PUBLICATION ON INFANTILE PARALYSIS

The 1948 edition of "Facts and Figures about Infantile Paralysis," a publication of the National Foundation for Infantile Paralysis, is now available to physicians and public health workers. Statistics on the disease, revised yearly, are gathered from the United States Public Health Service, state health departments and various other sources.

Incidence of infantile paralysis in the United States is shown in tables, maps and charts. Other statistics furnish information on age and sex distribution, case rates, crippling conditions and mortality. For the first time, this publication includes data on the disease in foreign countries.

Copies of the booklet (No. 59) may be secured free of charge by writing Education Service, The National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

NEW ORLEANS DISTRICT OF L. S. U. MEDICAL ALUMNI ASSOCIATION

At a meeting held at the L. S. U. School of Medicine on March 18 the New Orleans District of the L. S. U. Medical Alumni Association was organized. Approximately 75 of over 350 alumni practicing in New Orleans were present to hear Dean Vernon Lippard discuss the changes which have been made in the staff and plans for future expansion of the school. Following his address Dr. Jack R. Anderson was elected president of the district alumni association, Dr. Elliot Roy, vice-president and Dr. Philip Cenac, secretary-treasurer. Meetings will be held quarterly and will be of a business-social nature. Data concerning each meeting will be published in the Bulletin of the Orleans Parish Medical Society and in the New Orleans Medical and Surgical Journal.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC.

The general oral and pathology examinations (Part II) for candidates will be conducted by the American Board of Obstetrics and Gynecology, Inc. in Washington, D. C. May 16-22. The Shoreham Hotel will be headquarters for the Board and formal notice of the exact time of each candidate's examination will be sent him several weeks in ad-

vance of the examination dates. Hotel reservations may be made by writing direct to the Shoreham Hotel. Candidates for re-examination in Part II must make written application to the Secretary's office not later than April 1. Candidates in military or Naval Service are requested to keep the Secretary's office informed of any change in address. Applications are now being received for the 1949 examinations. For further information and application blanks address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh 6, Pennsylvania.

IN MEMORIAM

At a recent meeting of the Ouachita Parish Medical Society, held in Monroe, memorial services were were held for the following members of the organization who died during the year 1947: Drs. F. C. Bennett, George M. Trezevant, David I. Hirsch, Ellis Powell and Leonard L. Shlenker. Appropriate resolutions were prepared and spread on the minutes of this meeting.

CHARLES CAMILLE DeGRAVELLES
1883 - 1948

Dr. Charles Camille DeGravelles, of New Iberia, died on March 23. In his passing the physicians lose a good friend and an eminent colleague. Dr. DeGravelles was born in 1883 in St. Mary Parish, graduated from Tulane University School of Medicine in 1910. He was a member of the Southern Medical Association and a Fellow of the American College of Physicians. He was Councilor from his district for many years and was president of the State Society in 1943. War problems and the political pressure for state medicine made this period a difficult one and Dr. DeGravelles handled the problems with skill and determination. He presented the Society's case in the matter of the federal "Emergency Maternal and Infant Care" plan ably and was a zealous defender of the interest of the physician. The doctor died as he had said would be his preference; he officiated in the induction of a new citizen and then lay down to rest. The Society feels his loss.

WOMAN'S AUXILIARY

The semi-annual Board Meeting of the Woman's Auxiliary to the Louisiana State Medical Society was held at the Orleans Club on February 26. with Mrs. J. W. Warren presiding.

It was voted that a news letter be sent monthly to every member of the Woman's Auxiliary. This letter will be a very effective medium to advise the members of current events of the Auxiliary and instructive as to the various duties of its members.

Mrs. Warren introduced Mrs. Marquis C. Wiginton to the group as their Representative of the Auxiliary to the Rural Health Conference. Mrs. Wiginton is also serving on the Committee on Nursing with Mrs. Booker Wilkinson, Chairman, representing the Louisiana Federation of Womens' Clubs. Mrs. Wiginton was highly complimented by Mrs. Warren on her work in connection with the Rural Health Conference. It is believed that with their coordinated efforts they can formulate a sound program by which medical and dental case might be improved not only in rural sections but throughout the whole country.

The Calcasieu Parish Auxiliary has been very active this past year. Their last year's project was the Doctors' Library, which was started on Doctors' Day by donations from members of their chapter. Mrs. L. Kushner, Chairman, is still collecting and labeling books.

In relation to the Preservation of Medical Cultural Items, the Calcasieu Auxiliary is collecting material on the duties and activities of their doctors who left the Parish for active military duty. This material will be compiled in a book and displayed in Lake Charles on Doctors' Day before sending it to New Orleans.

Another fine job of the Calcasieu Auxiliary is their organization and opening of a Cancer Control Clinic consisting of five doctors, two nurses, a pathologist, and a permanent secretary. This clinic was opened on February 2, and is sponsored by the Calcasieu Chapter of the Louisiana Division of the American Cancer Society.

BOOK REVIEWS

Medicine in the Changing Order: Report of the New York Academy of Medicine, Committee on Medicine and the Changing Order, New York, The Commonwealth Fund, 1947. Pp. 240. Also, Introduction and Letter of Transmittal.

This book, a report of The Committee on Medicine and the Changing Order formed in 1942 by the New York Academy of Medicine, presents a factual study of the problem of providing adequate medical care throughout the country.

It is emphasized that the problem of providing adequate medical care is a complex one affording no simple solution and that the problem varies in different regions of the United States. In addition to purely medical aspects of the medical care problem—such as poor distribution of medical personnel, inadequacies of medical care facilities—the investigations of the Committee show that there is a close relationship between the social and economic conditions of an area and many of the diffi-

culties in providing adequate medical care.

According to the findings of the Committee, the problem of medical care emerges from the paradoxical situation that, as medical services have become more effective and desirable, they have also become more expensive and less generally distributed and, consequently, less available to many in need of medical attention. While admitting that medical care is better and more generally available in the United States to day than ever before, this report indicates that there is a definite need for improving medical care of many groups and for securing a more uniform distribution of medical services in many areas.

As a means of attack on this problem, government aid is favored along certain lines—such as increasing and improving public health services, subsidizing medical aid for indigent and low income groups, and assistance in the establishment and enlargement of hospitals. It is recommended that assistance from the government be administered locally insofar as practicable. This report further suggests that group practice of medicine, voluntary medical insurance, close cooperation among hospitals of all types, and greater attention to the practice of preventive medicine are other important means of solving the medical care problem. National compulsory medical insurance is looked upon with disfavor.

K. T. MOSLEY, M. D.

Unipolar Lead Electrocardiography, Including Standard Leads, Unipolar Extremity Leads and Multiple Unipolar Precardial Leads: By Emanuel Goldberger, B. S., M. D. Philadelphia, Lea & Febiger, 1947. Pp. 182. Price, $4.00.

This monograph is the outcome of the author's study of unipolar leads and their relationship to standard leads and their clinical application.

He uses a central terminal that differs from the one first used by F. N. Wilson, in that ordinary electric wire minus the 5,000 ohms resistance is used. This central terminal is considered zero in potential. Therefore, when an exploring electrode is attached to a central terminal of this kind, the electrocardiogram is thought to represent the potential of the underlying region upon which this electrode is placed and is said to be unipolar. It is claimed that there is no difference in the curves made in this way and those made with the central terminal used by Wilson. This probably does not represent the opinion of all cardiologists.

Unipolar leads differ from the standard limb leads in that the latter are bi-polar and represent the difference in potential between the two limbs upon which the electrodes are applied.

The author for some time has used what he terms augmented unipolar extremity leads. These are made by breaking the connection between the central terminal and the limb on which the exploring electrode is placed. The form of the unipolar extremity leads, the three standard leads, and the precordial leads depend on the position of the heart. Five basic unipolar lead patterns of the normal electrocardiogram are described. First—leads that face the epicardial surface of the left ventricle. Second—leads that face the epicardial surface of the right ventricle. Third—leads that face the cavity of the right ventricle. Fourth—leads that face the cavity of the left ventricle. Fifth—leads that face the back of the heart. The region of the chest where these patterns are usually found and the effect of the position of the heart and its rotation about its different axises are described and explained.

The author thinks it is necessary in every case to obtain the six unipolar precardial leads. They will show whether the basic ventricular pattern over the right and over the left ventricle are normal or not. The unipolar limb leads may show abnormalities in those regions of the heart that do not face the precardial leads. They also give valuable information about the position of the heart. In addition the three standard limb leads should be obtained.

The reviewer is of the opinion that this should be the minimum number of leads made in the vast majority of patients. It is sometimes necessary to go higher or lower on the chest, farther to the left and farther to the right to get the desired information.

There are numerous reproductions of electrocardiograms showing different heart conditions—myocardial injury, enlargement of the right and left ventricles, pericarditis, bundle branch block, digitalis effect, etc.—bringing out the changes in the electrocardiogram which are produced by the position of the heart and its rotation on its different axes.

The explanations and discussions in the text may not meet the approval of all, but do bring up some interesting points and will help one to understand some changes in the electrocardiogram produced by the rotation of the heart. There is quite a lot of repetition but this is probably an asset rather than a fault. There are about seven and a half pages of references. The reproductions with a few exceptions are nearly all good. To anyone interested in electrocardiography this small book should be helpful.

J. M. BAMBER, M. D.

The Normal Encephalogram: By Leo M. Davidoff, M. D., and Cornelius G. Dyke, M. D., 2d ed. Philadelphia, Lea & Febiger, 1946. Pp. 214. Price, $5.00.

This is the second edition of a book that was written in response to the request of various specialists, neurosurgeons, neurologists, roentgenologists, pediatricians, and internists. It is the only book which fills the need for a presentation of the subject of pneumoencephalography.

Almost all of the illustrations are from the author's own series of 400 cases. Anatomical details are described and illustrated very clearly; there are 155 illustrations, and 214 pages. A discussion of the method and a history of the method of encephalography, and a complete bibliography, are found in this book.

WALKER THOMPSON, M. D.

Obstetric Practice: By Alfred C. Beck, M. D. 4th ed. Baltimore, Williams & Wilkins Co., 1947. Illus. Pp. 966. Price, $7.00.

The fourth edition of Beck, printed in January 1947 is essentially the same as the third edition except for revision of the first chapter and the addition of a chapter on obstetrical analgesia and anesthesia. Minor revision compatible with advances in obstetrical thought are present but in the main the latest edition is almost page for page identical with the previous one.

Beck's Obstetrical Practice is noteworthy because of the profusion of illustrations which are welcome to both student and practitioner. It is concise, avoids as much as possible, academic discussions which are of little practical value and is at its best in the description and illustration of the mechanism of labor. It can be recommended as a ready reference manual for the student and general practitioner, although the specialist may find it a little less detailed than he might hope.

R. E. ROUGELOT, JR., M. D.

Minor Surgery: By Frederick Christopher. 6th ed. Philadelphia, W. B. Saunders Company, 1948. Pp. 1058. Price, $12.00.

The sixth edition of Christopher's Minor Surgery, as the other editions have, will probably be of most value to the physician without complete formal training in surgery. For the general practitioner and the intern it fills a definite need. The subject matter is well organized and is readily available for quick reference and review. Extensive references are included with each chapter and cover material through 1946. Specific additions to the sixth edition include a section on thrombophlebitis and phlebothrombosis with consideration of femoral vein ligation in prophylaxis of pulmonary embolism and anticoagulant therapy. The use of antibiotics and sulfonomides is given proper emphasis.

Other new material includes gel foam and oxidized cellulose in the control of hemorrhage, early postoperative ambulation, procaine in serum sickness, lumbar sympathetic block in thrombophlebitis, intra-arterial penicillin in infections of the extremities, and the excision and closure of bed sores.

Direct quotation is used extensively by the author with good effect. Concise exposition of the small print quotations may be more widely read by the busy practitioner.

EVERETT H. CRAWFORD, M. D.

Gifford's Text Book of Ophthalmology: By F. H. Adler. 4th ed. Philadelphia, W. B. Saunders & Co., 1947. Pp. 512. Price. $6.00.

The author of this fourth edition of Gifford's little classic in ophthalmology may not be known to some of our readers. He is high among this country's first five ophthalmologists, and our specialty is his debtor for this volume. His rare ability to simplify complex concepts will help many who are interested in ophthalmology to grasp more easily its fundamentals. The average reader does not realize the quantity and quality of blood, sweat, and tears that form the seasoning essential in making especially this type of book such a palatable and easily digested delicacy.

The chapters on visual and neuro-muscular functions and their disorders are presented with the clarity of a master. The table of contents, especially in medical works, illustrates the author's sense of sequence which is partly what makes medical classics, classics. In the chapter on the ocular manifestations of general diseases, the reviewer did not understand why metabolic and urinary diseases were placed between fungus and protozoal diseases. It is so much easier, however, to criticize the pecadillos of others than to do better ourselves that we critics are apt to develop a "holier than thou" complex, wearing self-constituted haloes which are too big for our heads and draping ourselves with mantles of Elijah which are really somewhat moth eaten.

The illustrations in this volume really illustrate which is more than can be said of those in most of the medical books which I have read and reviewed especially in these past several years. The judgment which the author has shown in the selection of current material and its presentation reflects his sound training and even sounder sense of medical values. Dr. Adler has created a truly beautiful and fitting memorial to the memory of our beloved friend and teacher, the late Dr. Sanford Gifford.

CHAS. A. BAHN, M. D.

PUBLICATIONS RECEIVED

Interscience Publishers, Inc., New York: Physiology of Man in the Desert, by E. F. Adolph, Ph. D. and Associates.

McGraw-Hill Book Company, Inc., New York: Fatigue and Impairment in Man, by S. Howard Bartley, Ph. D. and Eloise Chute, M. A.

The C. V. Mosby Company, St. Louis: Psychobiology and Psychiatry (2nd edition), by Wendell Muncie, M. D.

Charles C. Thomas, Springfield, Illinois: Trichomonas Vaginalis and Trichomoniasis, by Ray E. Trussell, M. D.

Williams and Wilkins Company, Baltimore: The Scientific Paper, by Sam F. Trelease; Foundations of Neuro-psychiatry (4th edition), by Stanley Cobb, A. B., M. D.